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ABSTRACT

Major institutions and organizations are increasingly recognizing the need for organized and structured action on space administration. In large organizations the successful administration of space matters requires a committee that includes an architect; an engineer; and ranking persons from personnel, planning, and finance departments. Procedures and standards need to be established so that relatively consistent results can be expected from proper requests. Sample forms are provided for a notification of space changes and space change work; a budget summary; a notification of a space change review; an authorization for project start; and a record of completed projects. Supporting material and records include room inventory lists, floor plans, minutes of meetings, summary of requests, and historical data. Even after a space administration system is organized, problems can be expected. Although solutions are not always possible, accommodations are suggested for problems of excessive demand, space hoarding, and status conflicts. Some space matters that may require the direct participation of top management are office location in regard to architectural heritage and centrality; obligations to important new employees and those of extraordinary ability; and allowances for the sensitivities and idiosyncracies of professional personnel. (MLF)

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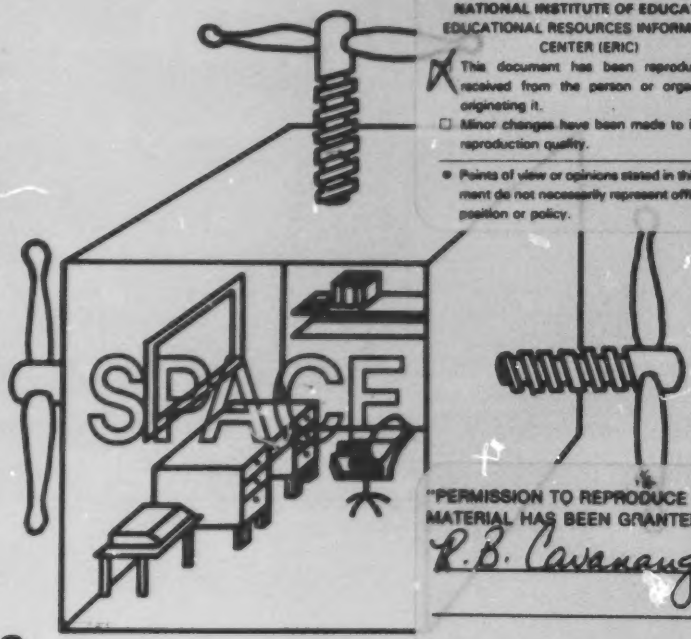

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PREFACE

It is frequently acknowledged that management or administration of spaces is one of the most difficult, though most important functions of educational institutions. Its importance seems to increase proportionally with size of the organization although its affects may be subtle or delayed. Poor space administration is quickly and easily recognized in small institutions but its painful affects may not be immediately apparent in large ones. It is bad for both. Salaries, space and parking have been labeled the most sensitive basic issues of a large urban organization although this order may change at times when major space problems appear. Space may oftentimes head the list.

Penalties have repeatedly been observed where space matters are relegated to lower echelons and set aside for problems which have greater challenge and appeal. Allowing space administration to deteriorate by neglect or poor prioritization will ensure at least a lower level of efficiency and morale.

It is intended herein to reduce the chances of neglect by description of a good system for administration of spaces. Procedures and ideas which can lead to trouble-free operations are discussed. Pragmatism is meant to prevail along with a straightforward manner of establishing precedents. Considerable effort is made in behalf of simplicity and lack of sophistication since, it is felt,

manageability is thereby facilitated. Other dividends thus result, not the least of which is economy.

Although most of the material is intended to apply to a major institution, many of the principles transfer to any organization where proficient handling of space matters involves profit, morale, efficient operations and/or good response to warranted demands. It may be easier to administer spaces in a material, profit-oriented organization since the final product or net result is much more apparent and quickly measurable. A non-profit institution will also register effects and eventually be regretfully aware of poor space administration.

Existing spaces are the prime object. The space administrator may have much to do with planning the construction of new buildings and other facilities; however, this is considered another field. Discussion herein is confined to spaces which are currently in place.

Comparatively little has been written about the administration of spaces. This may be due to the apparent ease with which the job can be initally performed. Many would consider themselves well-qualified to handle the work, perhaps even designate themselves as experts. It is true that the basic tasks are routine and simple, much like those of a hotel clerk. The difficulties and need for expertise arise with the emergence of complicating political matters, shortages, fiscal problems, personalities, great volume of business, conflicting demands and others. This principle may be similar to flying a light airplane or driving a car. The initial and basic maneuvers can be quickly learned. If severe winds, inclement weather, slick roads, icy runways or heavy traffic are added, however, required knowledge, skill and experience

change dramatically. Space administration can also become a complex field with considerable demand for knowledge, skill and experience.

Need for organized and structured action on space matters is increasingly recognized. Necessity for systematic approach to space demands is being impressed on more and more institutions by unfortunate experience with ad hoc, haphazard or inattentive administration. Material that follows is intended to provide assistance and be easy to effect.

A degree of forbearance may be in order in some instances herein where recommendations or suggestions seem to be self evident or oversimplified. Reference to importance of inspection of space change sites by reviewing persons, for minor example, might be considered as such. One might feel that this recommendation is a truism and so undebatable that its inclusion is superflous. It is nevertheless submitted that reminders and warnings are frequently necessary, even regarding space administration matters that are seemingly familiar and obvious.

Much of the information herein is directed toward the space administrator and his duties. Context is generally within the "working level" where day-to-day space-problem-solving is required and implementation of procedures and directives is required. It is also intended that ideas, definitions, constraints and orientations for top management be provided. Questions regarding space criterions and policies are frequently asked by leading executives, especially at the start of a new administration or when no viable space administration system is in effect.

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Chapter 1
THE COMMITTEE

GENERAL

Successful execution of space matters in any organization requires a responsible and authoritative cadre of persons for management. In a small organization, given proper authority, one person can head or possibly handle the entire operation, however, experience indicates that a Committee is necessary in large organizations. The wide range of expertise and representation necessary in large institutions actually requires such Committee, even with its inherent faults. It is adjunctly assumed that persons qualified to represent, evaluate and present will comprise the membership.

STATUS

If it can be assumed that space matters of an organization are close to the top of the list of priority issues, they should, accordingly, receive close attention of reponsible management. This includes personal attention and/or appointment of ranking personnel to the Committee.

Much of the work of the Committee will be handled by the chairman or members acting for the chairman. He

should therefore have superior authority and the will to use such authority if necessary. Most of the Committee members should also be senior persons with authority but the membership must not consist entirely of leading personnel since certain of the members should be qualified and available for staff research and support work.

CHAIRMAN

As mentioned previously, the chairman should have authority for making and transmitting decisions. He should also be familiar with current direction, goals and resources of the organization. Development of space may be misdirected, unresponsive or lack timeliness if handled by persons unfamiliar with the current emphases, objectives and changes thereto. If not the policy maker, the chairman should be close to him and have ready access to current information, confidential or otherwise, which involves space resources.

OPERATIONS

The vice president or person responsible for operations, maintenance and construction should be an important member of the Committee. Feasibilty of building or renovation plans will comprise the majority of the business of the Committee and his expertise and authority are essential.

The director of the physical plant or his close representative should sit on the Committee. The physical plant, incidentally, is generally meant to include the buildings, grounds, utilities systems, maintenance, construction and the related supporting personnel and equipment. Knowledge of the physical plant, its capabil-

ities and limitations, costs involved in time, money and affect on operations, frequently need to be immediately at hand while the Committee is deliberating. It is very difficult to take a posture or adopt a course of action without at least a general idea of the technical and physical aspects of the problem. Such expertise can be represented by the physical plant director or his representative. If a formal study, with all the time it takes, must be made before an issue is approached by the Committee, then the capacity to do business which addresses significant space problems, will necessarily be limited.

Especially in large organizations, it may be necessary to have both architectural and engineering expertise represented within the Committee except in relatively unusual cases where the director of the physical plant or the vice president to whom he reports are well qualified in both disciplines. Input of an architect and an engineer are frequently necessary. They should have experience and familiarity with the applications of their disciplines to the particular physical plant, its people, vagaries, special characteristics and operations.

PERSONNEL

The ranking person or vice president for personnel matters should be a member. Many space demands originate with employee increases. Accordingly, the one who is perhaps most qualified to signal future space requirements is the chief personnel officer.

Amount and type of space is frequently associated with morale. Regardless of justification, space may become a status symbol. The Committee member who

directs personnel matters is usually qualified to assess the impact of such condition and provide recommendations for modification of spaces or perhaps attitudes. He may also be qualified to adjudge relationships between personnel performance and working spaces, and know how to balance quality of the two for cost effectiveness. In addition, he may supervise training and be familiar with its space requirements.

PRODUCT

The officer responsible for the principal commodities or services produced by the organization should be a member or represented on the Committee. This is meant to designate the vice president for research in a large manufacturing or research corporation or the production manager, for example, of a relatively small organization. In a large academic institution, where research is one of the significant activities, the Vice President for Research or coordinator of research can be a valuable if not essential member of the Committee. His evaluations and proposals regarding necessity for adjustments in amount and type of space can be extremely important. In the case of an academic insititution oriented toward research, the coordinator for research matters is the most qualified person of the Committee to address and advise on details of highly specialized and technical research projects as well as the sophisticated and extremely expensive facilities and equipment which they require, not the least of which is space.

A question may arise as to the number of people of this category who sit on the Committee. If the organization has a number of relatively diverse manufacturing

plants, the question might be asked, "Should the production or project managers sit on the Committee?" In an academic insititution, should the deans or department heads have a chair?

The first reaction to these questions might be that the number of people who have relatively specialized interests on the Committee should be carefully limited. If possible, the number should be not more than one, at least where most of the effort of the organization is centered around one mission or product. With too many members, the group tends to be unwieldy and easily sidetracked. Excessive and unnecessary diversity of opinion may exist. Most if not all persons of the Committee should be concerned with each item of the agenda. If the group is too large or interests too specialized, the rule may be violated. Although perhaps utopian, members should be completely unbiased and approach each problem in the context of the general good of the organization. In reality, each is bound to have some degree of parochial bent and limitations on the number of specialists or persons representing only a small part of the organization might reduce the amount of unproductive diversity.

On the other hand, considerable success has been observed where, in the case of an academic insititution with strong central control, at least several of the deans were represented on the Committee. Excellent results were immediately apparent due, in part, to the fact that the persons involved were eminently qualified to make judgements regarding facilities requirements and other physical needs of the institution. If any bias or parochialism existed, it took a benign form where protection of

individual interests was maintained with better knowledge of, and participation in, decisions for support of other activities. Although the deans consistently protected their own interests, as it was their duty to do, they were better qualified to determine limits of reasonable demands. In the Committee, they were able to observe, first hand, the resources which can feasibly be obtained and the justifiable demands, other than their own, for these resources. The nature of persons involved, issues, chairman of the Committee and general leadership of the institution will, of course, contribute to the final results. It must be added, however, that a similar composition of the Committee approximately fifteen years earlier, met with extremely poor results such that the group was subsequently reduced in size as advised in the preceding paragraph.

PLANNER

Much of the business of the Committee will consist of planning, review or direction of planning. Success of the organization, incidentally, may be due to the proportional amount of time spent on plans as compared to operations or response to emergencies. The Vice President for Planning, the Planning Officer or the Planning Superintendent, whatever his or her title, should therefore be a key member.

The planner will be familiar with and can advise the Committee regarding present and future requirements and assist in providing direction or consistent courses of action. He can provide information needed for determination of land or building acquisitions or disposal of these resources and the necessary preliminary events.

His knowledge of past and future requirements of the organization can be invaluable, especially in an urban location. He can provide information needed for purchase and development of real estate for the institution. Where such development involves property, for example, that is extremely expensive or has complicated ownership, a carefully executed plan may extend over twenty years or more. A responsible senior official is necessary on the Committee to maintain consistency of purpose or the implementation of such a plan is not possible.

The planner should also advise or be prepared to advise the Committee regarding future warranted expansion or necessary cutbacks for each activity in the organization. At least an outline plan should be available and each activity informed of such plans in order that adequate opportunity is given to at least advocate modifications to the plan. If an activity is slated for expansion, then the reasons for and extent of such expansion should be laid out overtly. Validity should be established before commitment of funds and other resources. Such resources should be identified in advance. Similarly, if it is felt that an activity should not increase in size or that perhaps reductions should be made, this should also be part of the recorded plans which the Committee must have available. Routine business of the Committee should always be compatible with existing plans for the various activities. It is the planner who should guide, codify and provide definition in this regard.

Although it is invariably necessary that at least one person of the Committee be knowledgeable concerning current short range plans, operations and problems, the planner may not be the best one to fill this slot. He may

be familiar with them but perhaps should not be in a position where he is inhibited by them. He or she may need to remain aloof, so to speak, from day-to-day operations in order that prerequisite imaginative talents to plan for the future can be exercised.

FINANCE

The Committee must have a person who can address fiscal matters with knowledge and authority. The manner of handling space issues frequently depends on cost and method of funding. Decisions of the Committee may be useless without designation of funding support. The fiscal officer on the Committee can be prepared to immediately establish funding for implementation of decisions or provide reasons for rejection.

Many requests for space or funding will involve high-level judgements regarding feasibility. One of the first tests of such feasibility is whether or not estimated costs will be compatible with the planned fiscal posture of the organization. Questions such as these can only be answered by persons responsible for the budgets, past and future expenditures, and qualified to judge the possible fiscal impact of the requested projects.

STAFF

The Committee may require other members or staff assistance, depending on the particular mission or operations of the organization which is being supported. Although most of the staff work and the details necessary for a decision should be worked out before meetings, unknown or unforeseen elements may become apparent at the meeting and staff members with various qualifica-

tions may need to sit on the Committee. A secretary, for example, is necessary if one of the members cannot act as such. The secretary must have intimate knowledge of space resources. He or she must know appropriate procedures for referring matters to the Committee and the most expeditious methods for implementation of resolutions and decisions. He must know or learn how the chairman and members wish to operate and attempt to structure his part of the established procedures. He should keep the Committee advised of at least the administrative aspects of current projects and problems and maintain a record of deliberations and proceedings. This record is essential. Documented decisions and findings may establish critical precedents not unlike those for civil courts. It is therefore necessary that a person of the group write them precisely as the members intended. Agendas and minutes, accordingly, should be prepared by the secretary. A log of important issues, and action taken with regard to them, may also be maintained by him.

Although major matters will normally be introduced by the chairman, an organization is well-served that has a recognized and generally-known office or person to whom requests can be addressed or petitions submitted for consideration by the Committee. Members of the community should know who they must see to have their space needs heard and the best procedures for the process. They need to know how they can reach a responsible forum for space issues which they feel should be advocated and how their requests should be organized for the most expeditious response. They may even need to know what the bounds of reasonable requests might be. The secretary can provide for these functions. If

persons of the community must deal directly with top management regarding every issue which requires a high level decision, including information on status of the hearings, then petitions will either not be properly responded to or the decision makers will be saturated with unnecessary administrative details. The secretary can help establish regularity, structure and order in the business of the Committee. Without this office, transactions and deliberations will frequently degenerate to an ad hoc posture. Additionally, the secretary can disseminate findings and answer many of the questions of the community regarding such findings.

VISITORS

Issues before the Committee will frequently require views, expertise or information not available within the group. Visitors to the Committee can therefore provide for this deficiency and materially expand its competency. Additionally, morale of the organization is frequently served when, as previously mentioned, a forum is known to be available where advocates or appellants can visit the Committee meetings for informal hearings.

MEETINGS

Regularity and frequency of meetings are important. Activities wishing to bring issues to the Committee may look for ways to bypass the system if scheduling is difficult or if excessive delays must be tolerated. Meetings once a week are recommended with bi-weekly as a minimum frequency. Both members and clients will profit by such order and regularity.

Chapter 2
PROCEDURES

The outline of procedures which follows is intended to suggest means for establishing routine practices in administration of spaces. Management is thus simplified and general understanding facilitated. Although some may thrive on the challenge of uncertainty, experience seems to indicate that the majority dislike surprises in space matters and wish to be relatively certain that, after normal preparation, a given chain of events will occur on which they can count and plan. This posture is compatible with a system which can also deal successfully with unforeseen demands and emergencies. In fact, the better the organization for and resources dealing with routine matters, the more time and facilities that will be available for unpredictables. If all evolutions possible can be included within the organized scheduled routine, fewer cases are likely to appear unannounced.

PROMULGATION

Toward this end, space change procedures should be established and followed consistently. Universal promulgation is necessary. Distribution of informatory correspondence which outlines sequence, responsibilities and

guida..., can be of great value in implementation. The following is an example of a short informal notice which can provide for dissemination to all interested parties:

PROCEDURE FOR REQUESTING SPACE CHANGES **Rev. 9-1-83**

The following is submitted to provide information and guidance for Departments, Laboratories, and offices to facilitate planning, preparation and processing of Space Change requests.

Space Change Request

Experience with Space Change Requests has confirmed that explicit, recorded statements of needs and intentions are less subject to misunderstanding or misinterpretation by those who must investigate, review, evaluate, report, or take other implementing action. A semi-formal request has therefore been recommended and a procedure established.

The attached space change forms are intended to provide a simple and direct method for representation of anticipated requirements for new space or changes in assigned spaces. The form is designed to accommodate all types of space changes and since brevity is a goal, certain items may therefore not be applicable to a given request. It is desired, however, that as much information be provided as conveniently available. Seemingly unimportant information to the originator may be essential in gaining approval for the project.

All requests for space change work expected to commence on or after the beginning of the fiscal year should be forwarded at least by the end of the preceding calendar year. A project, for example, which should be started on July 1, should be requested prior to the preceding January.

Space Change Definition

Although precise definition is not possible nor necessary, a space change is generally a renovation or major alteration in a room. Repair, maintenance, or replacement are not considered space changes in themselves. They may, however, be part of a space change. Painting, plumbing, electrical work, and ventilation, for example, are not space changes as separate transactions but may be included in a space change.

Two space change categories have been recently added. The first applies to room alterations where a change in space inventory records is necessary. This is exemplified by partitioning since a new room or room area change thus originates. The second occurs when an alteration is estimated to cost over $1,000 or requires more than one skilled trade for implementation. An example of the latter would be a project requiring carpenters, painters, and electricians. Such project would need to be handled as a space change in order that necessary supervisory and coordinating services can be assigned.

Funds

A yearly appropriation of General Funds is made for space changes. This amount is normally declared by the preceding January. The total estimated cost of the approved space changes is then, by deliberation, reduced to the amount of funds available. Special funds from a great variety of sources may also be made available during the year. They are less predictable, however, and are frequently obtained by the activities for which the changes are implemented. Requests for all space changes should be submitted in the usual manner, regardless of the source of funds.

Furnishings

With the exception of new buildings and certain major space change projects, furnishings are normally the responsibility of the laboratory, department or office concerned. A direct relation frequently exists, however, between space changes and the furnishings therefor. Accordingly, a furnishings list and estimate may be prepared by the designers of the space change.

Furnishings selection assistance is available in the Physical Plant Department. The requisition and account number is then normally provided by the benefiting activity. Furnishings for space changes may, in unusual cases where the activity has no administrative channel for obtaining furniture, be provided from space change general funds. These cases are necessarily limited since the amount allotted annually for the entire organization is only $25,000 in this category.

Moving

Moving of furniture or equipment may be part of a space change or it may be requisitioned separately. Moving is most frequently done by the Physical Plant Department. When required in the course of a space change, it is necessary that moving costs be included in the total estimate.

Routing

As mentioned above, requests for space changes to be completed in the forthcoming fiscal year should be submitted by the January 1 preceding. Review and endorsement by the supervisory authority and the appropriate Officer are necessary, as indicated on the form. Requests are then forwarded to the Committee for Space Planning. (Space Administration desk of the Physical Plant, Room 65-450) If review by a key officer is necessary prior to administrative action, the request may be forwarded directly to his office.

Estimates

An estimate of cost for each space change project is requested immediately after receipt of the Space Change Request at the Space Administration desk. Such estimate is frequently a determinant or extremely influential in the approval process. It is therefore obtained as soon as posible. The estimate is normally required before the project can be submitted to the Committee for Space Planning. In some cases it may be necessary for activities to have an estimate before initiation of a Space Change Request since the cost may determine feasibility of the request. In this unique event, a preliminary estimate may be requested directly from the Physical Plant Department. This department is, incidentally, the only activity qualified to make official estimates for space change construction projects.

Review

Space change requests, thus prepared and routed, are compiled in an annual Space Change Program. The program includes all received requests and anticipated projects in a bound compilation with as much information needed for review as practicable. It is presented first to the Committee for Space Planning in late January. Since funds are always limited and total estimated costs always exceed that available, it is necessary for the Committee to review all projects before a decision can be made on any one.

Deliberation on the Program continues at each meeting of the Committee for Space Planning on alternating weeks and decisions are then immediately transmitted to the appropriate officers to which the requesting activities report.

The above outlines the normal chain of events. In cases where requirements cannot be foreseen and requests are submitted after January 1, action will be taken as soon as possible. In a realistic sense,

however, it is seldom possible to give the late requests primary consideration in funding and scheduling.

If the Committee is unable to fund a space change and the need persists, requests should be submitted again for the following year. Space Change requests are normally valid for the fiscal year of application and should be resubmitted if necessary. They are not automatically carried forward.

REQUESTS

For good reasons, space changes should be in writing. The amount of action that follows and the numbers of people who will be involved, prescribe a hard-copy record of the request which at least briefly describes basic requirements and intentions. When verbal space change requests are generally permitted, projects can be easily misrepresented, disregarded or simply forgotten. Those who must investigate, evaluate or otherwise act on the requests need a responsible statement of requirements which can be studied, duplicated, forwarded to interested parties and finally filed as a necessary piece of history.

This is not to say that the request should be elaborate. A standardized, easily understood and recognizable document is best. Simplicity is important. A form similar to the following may prove satisfactory:

Name of Activity

SPACE CHANGE REQUEST

Date _____

Department _____

Room number _____

Equipment or furnishings required _____

_____

If known funds are available for renovations or furnishings, please state _____

Completion date desired _____

Latest acceptable completion date _____

Date space can be made available for renovation _____

Approximate number of persons who will be using the room at one time _____

Description of and reasons for desired space change:

Submitted by: _____ Date _____

Approvals: _____ Date _____
Department Head

_____ Date _____
Supervising Officer

Supplementary information can, of course, be attached to the form. Accompanying correspondence may be necessary to provide justification or elaboration. The form should nevertheless be attached as a covering document. Administrative personnel will thus become familiar with it, recognizing it as a vehicle to obtain

services. The device has proven merit.

The request forms should be forwarded to all activities along with the previously-mentioned outline of space change procedures or instructions for requesting space changes.

LIAISON

It is necessary to keep responsible persons informed of plans and requests regarding space changes. The supervisor, department head, director, and/or appropriate vice-president should be informed of the intended work. Their endorsement is usually needed to confirm necessity, provide impetus, indicate funding possibilities, establish priorities, or align the project with related planning.

Early liaison with those who will perform the work may be necessary. Engineering problems may need to be evaluated before submitting the request. Design may be critical and have great impact on cost, site and feasibility of the project. Input of architects or builders may also be useful or even mandatory at the outset. On the other hand, a straightforward or simple project may properly be submitted with only a statement of specifications or tasks involved.

If doubt exists regarding requirements or expectations, the requester should obviously be consulted. Although basic specifications can be written, additional liaison with the originator of the request is usually necessary, especially by activities who will actually perform or supervise the work. The time, effort and expertise needed to prepare a detailed program or list of specifications is usually not justified in the case of space changes.

COST ESTIMATES

Estimating should normally be done after the request is submitted. This sequence is recommended since the request will thus provide written notes, specifications or understandings regarding the work to be done. The amount of misinformation which may arise at this stage of the project can be significant and much wasted effort avoided by entering the design and estimating process with well-defined intentions and expectations.

Circumstances will exist when the estimate must precede the request. Probable cost might need to be determined before justification of the project. A change for a given activity which costs $5,000 may be doable, for example, but if the cost is $10,000, it may be infeasible and the request not warranted.

Segregation of tasks in the cost estimate may be necessary. Items may be properly chargeable to an individual source and funds for the project need to be supported by more than one account. Equipment and furnishings may be the responsibility of the client and yet equipment may be paid for by a separate contract. Construction, labor, etc., might be properly chargeable only to general funds. The particular cost-accounting needs of the activity should be considered when requesting or preparing estimates.

Good cost estimating involves considerable training, skill and experience. Estimators for major construction projects are highly qualified persons and extremely well paid. Because it is an important, difficult and critical evolution, estimates from only qualified and recognized persons or activities should be used in planning. For space changes, estimating is usually done by specific

persons or an office of the Physical Plant organization. Although estimating on the basis of experience only is useful on occasion, the figures should be used with caution. A possibility thus arises that the project will be approved, using information which is hurriedly and incompletely assembled, while making a commitment for its completion. The decision to proceed usually depends to a large measure on the estimate and obligations are invariably incurred after such decisions. Late increases in the estimate may be extremely difficult to support. This pitfall is commonly experienced since estimates are all too frequently demanded on short notice in order to make timely decisions. The temptation is great to supply a figure on such occasions, while having insufficient information. An administrative trap may be the unfortunate result. If preliminary estimates are absolutely necessary, they should be marked with caveats such as "provisional" or "incomplete".

On the other hand, if perfectly accurate estimates are demanded before authorization to proceed is given, excessive delays can result. Progress may be seriously hampered. Where an activity is in the vanguard of rapidly moving research or production fields, excessively long deliberations and waits for precise estimates may mean that the competition will get there first and opportunities will have passed by. This is not intended to suggest that decisions should be made with no regard for estimated cost or that open-ended commitments should be made. It rather means that, when time is not available for detailed, business-as-usual estimates, then it may be wise to use past experience and best-judgment estimates from whatever expertise that may be available to achieve

expeditious action. In such cases it is good practice to qualify related decisions by applying a limit on the amount for which approval is given. The activity could be told, for example, "If you concur that $20,000 could be an adequate amount for the project, authorization is given to proceed with this as a limit. If it is later found insufficient, the issue should be returned to the Committee. No assurance can be given at this time, however, that the amount for the project will be supplemented."

INVESTIGATION

Each request must be examined carefully although, depending on experience, some will require greater attention than others.

Reviewing personnel should, first of all, be familiar with the site. Location and environment of the proposed change may be so important as to make the project infeasible if certain conditions exist. Petitioning by an unknowing requestor for construction of a laboratory on property for which a highway is planned, is an obvious example. Experience has shown that much insight can be gained by encouraging all reviewing authorities to visit the site, including the entire Committee for Space Planning. This is true, even if supporting correspondence is in perfect order.

The space change may involve or propose acquisition of space. Rare cases have been observed where acquisition of the space of another activity is assumed without basis. The space administrator must determine if a space deficiency exists and proceed to acquire the space or provide valid reasons for a negative reply. An exchange, modification of assignments or form of "com-

pensation" may be necessary. The space administrator is usually in the best position to coordinate or cause the necessary coordination.

Feasibility should be established as soon as possible. Factors perhaps unknown to the requestor may completely rule out the project. The sooner it can be done the better, since the activity which comes into motion as a result of the request may be wasted, including expenditure of time and money, if the project turns out to be infeasible.

Responsible persons must be identified and interested activities informed. The investigation should determine or reveal these persons and activities. A project requested by Professor X may be extremely important and prompt immediate action while one from Dr. Z may, for good reasons, be set aside.

Difficulties may be caused by initally overlooking or ignoring an important schedule. A necessary sequence of events could be critical. "I didn't realize it would take so long," or "If I don't get it by September, forget it," have been heard many times. The client may not be prepared to accept any delay and yet, in reality, a central piece of essential equipment for the space change may not be deliverable until many months after the planned deadline. Although a precise schedule may not be possible until later in development of the project, the initial investigation should attempt to at least abstract it. Funding should be considered at the outset, even to the extent of assuming that money will be provided from a general allotment. It should be determined if the client will participate in or assume responsibility for the funding or if money must be obtained from another source. If funding happens to

be a significant issue, failure to establish logical sources may later cause delays or additional unforeseen tasks for reviewing authorities.

Limitations and restrictions should be identified. Extent or scope of the project should be investigated and recorded as soon as possible. Although difficult to completely codify, if as many bases can be covered in the investigation as possible, a minimum of open-ended elements will appear and firm ground can be assured for the eventual decisions.

PROGRAM

Prior to consideration of the requests by the Committee, they should be summarized and available for review in one composite publication. Preparation of a program, or organized compilation of all requests in one document, is suggested. Requests for space change work should have been submitted well in advance and the program prepared as soon as possible after the required submission date and receipt of the requests.

The program should have at least a brief description of each project. The location, activity name, estimate for construction and furnishings, new purpose of the room if to be changed, area and completion date comprise the minimum information which the program should list. Date which the request was made and the source of the estimate may also be needed by some activities. Reference should be made in the description to pertinent correspondence if necessary since the program should not contain great detail.

Inclusion of or reference to a floor plan is usually helpful in visualizing the project. If a standard format is

used each year, such aids will be recognized and introductions and orientations for reviewing persons will thus be shortened. Much time and effort can be saved.

The foregoing can best be recorded on one page. Projects can be organized according to department or major division. An indexing system is recommended since, during review, it is frequently necessary to shift back and forth between projects. Necessity to shuffle papers while the Committee is waiting on information to make a decision can be embarrassing.

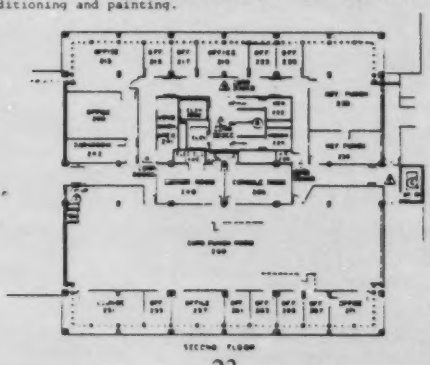
A sample page is illustrated:

E-15

BUILDING AND ROOM	: 46-213
DEPARTMENT	: Computer Center
ESTIMATED COST OF RENOVATIONS	: $15,000
ESTIMATED COST OF FURNISHINGS	: $2,000
USE CODE	: OFFICE
AREA	: 414 s. f.
DATE REQUEST RECEIVED	: October 15, 1985
COMPLETION DATE REQUESTED	: September 1, 1986
RENOVATIONS ESTIMATED BY	: Physical Plant

DESCRIPTION

Design, partition and furnish room 46-213 to provide two offices for executive personnel of the Computer Center. Included in the project are ceilings, flooring, electrical work, air conditioning and painting.



SECOND FLOOR

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The program can be of great value for reviewing personnel. Being a compilation of all projects for a particular period, it provides a good summary. After the projects are completed and the program updated, an excellent historical record is thus available.

A predetermined amount of money is usually allotted or budgeted for space changes each year. In the typical case where the amount is small, severe competition may develop for limited funds. Comparison of need is required. The program can be a handy reference for such comparison. Its organization, according to major activities, can provide a quick idea of the scope of requests for each activity.

FURNITURE AND UTILITIES

Furnishings should normally be considered with the space change. A distinct advantage can nevertheless be realized if, as a matter of policy, the requesting activity is made responsible for procurement and funding of furnishings. It has been found that the requestors are more frugal and reasonable in requests for furnishings if their own budget is affected by the transaction. The same can be said of space changes in general, but separate overriding reasons exist for their central funding.

Utilities installations, such as air conditioning, additional electrical service, modified water supplies or building exhaust systems are not ordinarily considered space changes. They may nevertheless be part of a space change due to dependence of the project on service which will be provided or the particular funding situation where money may simply not be available for the utility unless fiscal support is given by the space change

project. The utility may also be an integral part of the space change or at least closely related to it.

Utilities changes, as discussed above, usually involve high cost and the equipment involved invariably becomes a fixture or permanent part of the physical plant. A forum for analysis and evaluation, especially with regard to funding, is therefore not always available. For this reason, the committee which reviews and decides on space changes is probably in the best position to review and decide on utilities modifications. The previously mentioned close association of utilities changes and space changes, as well as the existing funding channels, may actually demand this procedure and indicate no alternatives.

Procedures for requesting utilities changes such as air conditioning should be promulgated, if feasible, since the affected community should have opportunity to present logical requests for needed facilities. A recognized procedure must exist for obtaining a hearing on such matters. This is not always possible; however, since varying organizational and administrative needs may make a standard procedure impossible. Examination of utilities changes may be necessary on a case-by-case basis and general rules not apply.

BUDGET SUMMARY

Estimated costs for each project should be compiled in a budget summary in order that reviewing authorities may see at a glance the approximate amount of money represented by current requests. A simple example of such presentation could be:

SPACE CHANGE FUNDING
(and Index to Program)

Major Activity: School of Humanities

Date: January 21, 1984

Page	Drawing Number	Activity	General	Special	Other	Furnish.	Priority
H-1	60-883	History Department	$15,000			$2,000	
H-2	60-220	Psychology Department	20,000				
H-3	55-550	Economics Department		$25,000			
H-4	60-783	History Department	10,000				
H-5	55-450	Economics Department			$30,000		
H-6	60-448	Humanities Department	8,000				
H-7	60-663	Pol. Science Department	15,000			1,000	
H-8	55-570	Economics Department		10,000			
H-9	60-338	Anthropology Dept.	5,000				
H-10	60-238	Psychology Department	12,000				

The foregoing provides a list of estimated costs for Departmental projects of the School of Humanities. It is arranged according to the particular channels for funding in order that demands on funding sources can be seen at a glance or totals easily calculated. Totals from this and similar lists can then be compiled in a summary of estimated demands by major activities such as the following:

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SPACE CHANGE SUMMARY

FUNDING

January 21, 1982

Activity	General	Funded	Furnishings
School of Architecture	$10,000	$ 70,000	$ 3,000
School of Engineering	53,500	92,000	6,000
School of Humanities	85,000	35,000	3,000
Research Laboratories	17,500	417,000	10,000
School of Management	12,000	60,000	3,000
School of Science	23,100	9,200	8,000
Support Activities	7,500	184,000	1,000
Totals	$208,600	$867,200	$34,000

TIMING

As previously stated, requests should be submitted well in advance of the expected period of implementation. Reviewing personnel can thus make comparisons to determine relative need. While the submission of requests in a random, ad hoc fashion may be acceptable if adherence to a budget is unnecessary, good administrative practice requires a look at all known projects before decisions are made on any one. The typical case involves significant competition for limited resources and comparisons are extremely important. Prompt and orderly submission of requests is required in order that a presentation can be prepared to display these comparisons.

It is assumed that cycles of activity will generally align with the fiscal year. If the fiscal year starts on July 1, funds and action on projects will generally come alive on this date or during the twelve months thereafter.

The normal planning cycle should start in the fall season for an academic institution, with an official solicitation for requirements as previously mentioned. Procedural information should be forwarded to requestors at this time. It may suit the planning cycle to ask that requirements be submitted by approximately the first part of January. If participating activities are reasonably responsive, it is usually unnecessary to establish the deadline precisely. Avoidance of lockstep schedules can frequently create a better image, credibility and greater acceptability, especially in academic communities where a certain amount of permissiveness may be normal, easily managed or impossible to change. Prompt responses as a reward for timely requests will generally have a greater affect than rigid schedules.

Assuming again a fiscal year cycle starting in July, requests should be compiled in a program by the latter part of January, together with the best estimate of a total budget. This material can then be easily presented to reviewing authorities. Depending on amount of detail required, difficulty in funding and volume of requests, it should be possible to obtain decisions by the middle of March. Experience has shown that this desired schedule nevertheless tends to slip since reviewing personnel, who certainly have other duties, are unable to give their undivided attention. Delay, thus caused, is inevitable and usually justified.

DISSEMINATION AND IMPLEMENTATION

After decisions are available, requesting activities should be notified, especially if promised an answer or concrete result. Avoid friction by keeping such activities informed. Experience has shown that even a negative reply to requests may be acceptable or at least palatable if given in a timely and responsible manner. On the other hand, considerable resentment may result after notification of approved projects when bona fide expectations are ignored or such notifications unnecessarily delayed.

Caution should be exercised in dissemination of information regarding approved projects. Except where a detailed description of the project is available, including complete and accurate cost estimates, it is frequently wise to hold back full commitments and approvals. Obligations which cannot be met may thus be avoided. Where cost estimates are missing or incomplete, for example, it would ordinarily not be wise to unconditionally grant approvals. It may be prudent to specify that approval applies only within a range of estimates or that costs must not exceed a certain figure. Other limitations may also exist such as lack of new space for the project. In such cases it may be necessary to stipulate that failure to acquire the new space cancels the authorization to proceed. Reviewing authorities should be cautious in making obligations for work and expenditures in behalf of projects where space problems are yet to be resolved. Open-ended grants will usually be regretted.

Clients could be notified concerning the space change review by correspondence similar to the following:

April 2, 1984

Dr. John Doe
Director of Research
The Corporation

Dear John:

As you know, I customarily advise the Vice Presidents and Directors of Space Change Requests which can be supported during the forthcoming fiscal year. The Space Committee has since January been looking at all declared or anticipated Space Change requirements of the Corporation and implementation of projects, as listed below, appears feasible. There is considerable competition for limited funds and some hard choices are necessary. If you feel that ordering of priorities should be changed, that certain projects should be approved in lieu of those listed below or that reexaminations are otherwise necessary, please let me know.

With reference to the dollar amount of the estimate, approval is predicated on an appropriation of approximately that amount from funds administered by the Committee. If the estimated amount is subsequently increased significantly, the activity will need to provide the additional amount or return the project to the Committee for deliberation. In some cases, a specific request is made to share in the funding.

A summary of the approved projects is as follows: (The first two columns give the Program page and an identifying room number)

	Room	*Dept.*	*Task*	*Estimate*
D-1	75-360	Chemistry	Renovation	$ 8,000
D-2	68-1410	Geology	Fume hood	$15,000
D-3	72-1740	Chemistry	Lab. furn.	$ 9,000

Respectfully,

Sam Pete
Executive Vice President

SP:iao

cc: CSP

Finally, an administrative mechanism is necessary to convert the approval to a directive or authorization for actual start of the project. Although seemingly a perfunctory and unimportant evolution, it has been found to be critical. The work which follows depends considerably on this evolution for instructions, direction and authority. The amount of money which can be spent, the ultimate control, limits on purchases, description or specifications, period in which the money is available, basis for directives, source of funding and persons authorized to make disbursements may be included. It should be in writing and become a permanent record of the organization. The following is a sample of form-correspondence which can outline such specifications:

May 4, 1984

Mr. John Doe
Director of Fiscal Operations
The Corporation

Dear Mr. Doe:

Would you please have a Budget Authorization prepared for the following project which has been approved by the Committee for Space Planning:

Account Title: 4-780: Electronics Research

Source of Funds: Space Change Research Grant 25694

Amount: $5,000

Description of Project: Renovate room 4-780 for new Research Assistant Mary Doe. Included in the project are partitioning, plumbing, electrical work, air conditioning, door installations and painting.

Person authorized to make expenditures: John R. Roe

Respectfully,

R. B. Noe

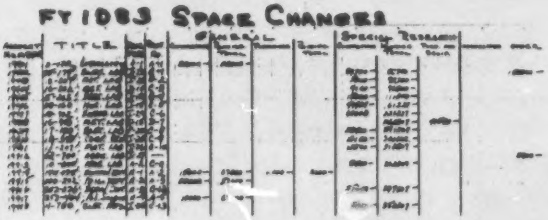
RBN:rbn

Its detail will depend on administrative requirements and future reports. Important as an administrative device for current operations, it is also a useful record as will be mentioned in the next paragraph. Later audits may need a generally known and easily accessed description of projects previously completed and the file of these papers can provide one source of such record.

RECORDS

Forms, correspondence and informational material can conveniently and should become the space records of the organization. Few records, per se, are necessary in space administration since paper work prepared in the normal course of business, if properly filed and perhaps updated, serves extremely well to record essential transactions. Correspondence falling in this category, as mentioned previously, are the space change requests, the program, the program index, estimate summaries, letters to requestors and budget authorization requests.

In addition, a list of all completed projects is extremely useful. The following is an example:



The above list includes, from left to right:

1. The account number, which is the identification for fiscal matters associated with the project.

2. The title, which identifies location by building, room number and responsible activity.

3. The program page number, which refers to the space change program where a description of the project can be found.

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4. The project number, which designates the particular category of funding involved. For example, in the case of the first item, the chemistry project in room 3-122 was the first funded by general, designated "A", money. The one following in room 35-174 was the first project funded mostly from special research, designated "C", money.

5. The next columns show the amounts committed in the various funding categories. Space for running totals is provided. Status of various allocations or allotments can thus be seen at a glance.

This information can easily be transferred or recorded originally by means of a computer. Although additional time may be required for this transfer, the resulting presentation is much improved and the computer can provide convenient filing and recall capability for the information. Arithmetic calculations and repeated bookkeeping evolutions are alsc much easier, accurate and expeditious when the computer is used. A code can be added in the left column to assist in sorting and retrieval. The following is an example of a small part of this presentation:

FISCAL YEAR 1983 SPACE CHANGES

ACCT #	ROOM	ACTIVITY	PAGE	PROJECT	GENERAL CONSTRUCT	GENERAL NON TOT FURNISH	SPECIAL CONSTRUCT	SPECIAL NON TOT FURNISH	OTHER
19401	3-122	CHEMISTRY	A-1	A-1	22000	22000			
19402	35-174	ELEC. LAB	I-22	C-1			87700	87700	
19403	13-267	MAT. LAB	I-23	C-2			3000	72700	
19404	16-282	MET. LAB	I-16	C-3			4100	76800	
19405	5-213	SPEC. LAB	I-153	C-4			19000	111800	
19406	38-160	MUC. LAB	I-15	C-5			49427	161227	
19407	23-902	ENERG LAB	I-24	C-6			60000	221227	
19408	16-450	MET. LAB	I-1'	D-7				262907	41580
19409	17-120	ELEC. LAB	P-20	C-8			28488	291395	
19410	18-346	COMP. CEN	I-25	C-9			10192	301297	
19411	13-267	MAT. LAB	I-26	C-10			12000	313807	
19412	52-210	MUSIC LAB	I-27	E-1					27
19413	10-300	ARCH LAB	A-2	C-11			8500	322307	

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SUMMARY

Procedures should be established and the community educated regarding the most expeditious methods for requesting space changes. People of the organization should be made aware of the response which can be expected after such requests are submitted. Each space change should be investigated as necessary and liaison established with persons who are depending on outcome of the requests. Reliable cost estimates must be obtained and reviewed. Care must, of course, be exercised in making judgements based on such estimates. Qualifications may be necessary.

A program or summarized assembly of all requests, together with estimated costs, should be made available or presented to decision-making personnel as part of an established routine. Production schedules, the annual planning cycles or other triggering mechanisms will determine timing requirements for action on space changes and evolutions related to the space changes.

The community should then be informed regarding progress and judgements on their requests. Finally, records with pertinent information regarding current and historical data should be maintained and made readily available for easy access.

Chapter 3
SUPPORTING MATERIAL

INTRODUCTION

Storage and retrieval of essential data for space administration requires much more than human memory. Persons working with space must be able to call on a number of information sources to illustrate, recall or provide authority for most of their tasks. Files, lists, graphics, bookkeeping records and correspondence should therefore be maintained. Moreover, they must be generally accessible with adequate indexes and standard labels.

Although the space administrator will have the greatest need for this data, especially in the allocation of space, other activities will need it for a wide spectrum of space-related tasks. Space data, for example, is many times necessary in preparation of routine and special reports of an organization. Space data inputs are invariably essential in determining operating costs. Budgets are frequently based on amount of occupied space. In the case of specially funded projects, audits are usually made of resources, including prominently, space. Equipment management depends on knowledge of assigned location and therefore requires space data. Finally, space

demands and investigations usually start with a description of the existing situation as a basis. From this point, new requirements are described and justified. Past amounts and utilization intensity of spaces are frequently used for comparison and as an index for estimating future needs.

Caution can appropriately be inserted at this point regarding necessity for vigilance. Care and attention for supporting material and records are extremely important, especially in space matters. This necessity persists even though the tasks involved are frequently not the most exciting. Dynamic, talented persons, eager for a challenge, may be difficult to recruit for many of the tasks involved. Turnover of personnel who have the patience to conscientiously and consistently survey and update supporting material for space administration purposes is invariably great. Moreover, a declining state of organization and upkeep is not immediately apparent, especially in the case of a voluminous data base. Degeneration of space data can go unnoticed at times, even when current operations are in apparent order.

The minimum requirement for types of supporting material includes:

Room inventory lists
Floor plans
Minutes of meetings
Summary of requests
Historical data

The following will describe and discuss these categories of information and their permutations.

ROOM INVENTORY

The first essential in development of a space administration system is an adequate room inventory. Its basic data should include at least the room number of each space in the inventory, the room purpose or function, the area within the walls and the assignee or activity responsible for the space. Accordingly, unless such data is already available, each room in the plant must be listed, identifying numbers designated, the space measured with relative accuracy, a responsible activity determined and the information recorded in an easily accessible list. Compatibly arranged for computer filing and manipulation, a part of a page of the list might look like the following:

AGRICULTURE DEPARTMENT

SPACE INVENTORY

BUILDING ROOM LIST — PAGE 86

BUILDING 71 — 1-15-84

BLD-RM	AREA	ROOM TYPE	DEPARTMENT
71-002	80	JANITOR RM	PHYSICAL PLANT
71-003	175	OFFICE	AGRICULTURE
71-004	175	OFFICE	AGRICULTURE
71-005	159	OFFICE	AGRICULTURE
71-006	175	OFFICE	AGRICULTURE
71-007	900	CORRIDOR	PHYSICAL PLANT
71-008	120	PUB LAV	PHYSICAL PLANT
71-009	350	TEACH LAB	AGRICULTURE
71-010	100	SEC AREA	AGRICULTURE
71-010	130	OFFICE	AGRICULTURE
71-011	180	OFFICE	AGRICULTURE
71-012	120	OFFICE	AGRICULTURE
71-013	100	OFFICE	AGRICULTURE
71-014	120	RES LAB	AGRICULTURE
71-015	140	STOR RM	AGRICULTURE
71-016	110	SEC AREA	AGRICULTURE
71-017	140	OFFICE	AGRICULTURE
71-018	110	OFFICE	AGRICULTURE
71 018A	100	OFFICE	AGRICULTURE
71 018B	100	OFFICE	AGRICULTURE

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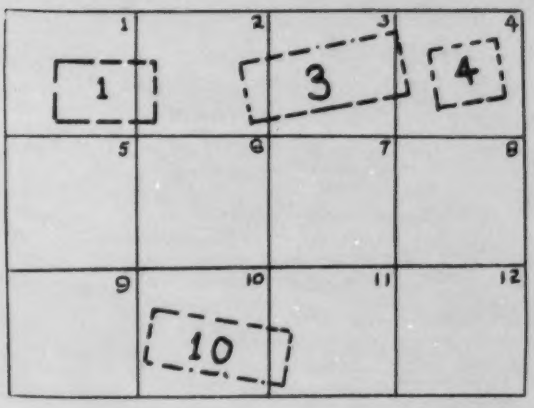
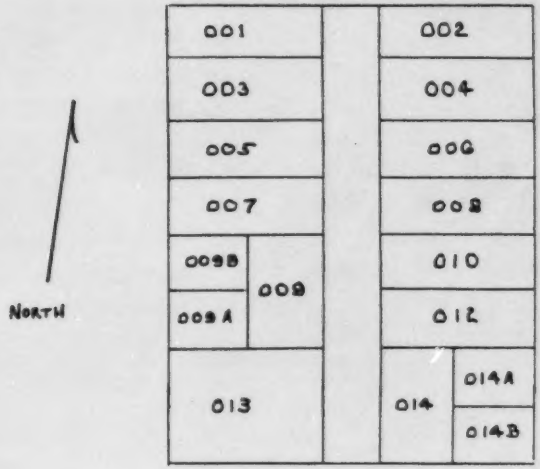
The room designation is best comprised of the building number followed by the room number. Both should be systematically contrived. Building numbers can easily be suggested by preparing a grid to place over a map of the campus or industrial complex. An overlay grid, represented by solid lines as shown below, designates numbers for buildings 1, 3, 4 and 10, represented by dashed line boxes:



Where a considerable amount of property or a great number of buildings are involved, several grids can be used. Divisions may be made into north, northwest, west or southwest sections. A building in the southwest section might be given the designation, for example, "SW10".

Room numbers can be listed consecutively down the corridor with odd numbers on the right and even numbers on the left, starting from the north or west and increasing toward the east and south. If a suite of rooms is entered

from the corridor, the first area is numbered as previously stated and A, B, C, etc. added for the satellite rooms starting on the left. Room 71-009A might be, for example, the first outer room on the left from 71-009, which is the fifth room on the right, facing south or east. If possible, modules or bays should be numbered and the room number take that of the northern or western bay, as in the following schematic floor plan:



BUILDING 71

Adherence to rigid rules, however, is not necessary. More important is the assured numbering of each room, without duplication, and agreement of the number on the door with the inventory records.

A uniform method of numbering floors is also desirable. A floor at or above grade, for example, might be designated the first floor and the one below grade considered the basement with other floors numbered accordingly. Basement room numbers should be preceded with a zero for each consecutive level below grade. Again, rigid rules are usually not necessary. Consistency is important.

Areas should be determined by actual measurements at the site. If accurate floor plans are available, room dimensions can be successfully scaled from such plans. Areas of rooms, regardless of shape, are calculated arithmetically in the usual manner after obtaining dimensions from the inside of the room walls—ignoring columns, radiators and fixtures. Great accuracy is seldom required, especially when the level of precision is understood and accepted. An error rate of 5% should normally be tolerated if deficiencies are not due to carelessness or inattention. It is nevertheless well to realize that precise measurements may be necessary in certain cases where accommodation of special equipment is required or where persons involved are, for various reasons, sensitive regarding amounts of space provided. It should also be realized that cost of high accuracy may be significant, since measurements for the inventory can involve many hours of painstaking work, not to mention subsequent updating which must continue the established level of accuracy.

The declared purpose for which rooms are used may be critical. Reimbusement for facilities provided, allowance for overhead, taxes or construction cost-sharing may be significantly influenced by the record of room

types. In the case of sponsored research, for example, 80% of the cost of constructing a room for computer equipment may be reimbursed by the sponsor, whereas a library facility might be reimbursed at a rate of 50% or less. Where such criticality exists, the record of room purpose can be extremely important and specificity mandatory.

A standardized list of room types is therefore recommended. Such list is used by the Space Management Data Processing System, developed by the Office of Facilities Management Systems of the Massachusetts Institute of Technology. Called INSITE, this system complies with recommendations of the Facilities Inventory and Classification Manual which was originally promulgated by the former U.S. Department of Health, Education and Welfare. It classifies rooms according to major and minor room types. Examples of major room types are Classrooms, Laboratories, Offices, Study, Special Use, General Use, Support, Research, Health Care, Residential, Circulation, Mechanical Area and Custodial Room. Minor room types are designated under these major types. Several examples of minor laboratory room types are Animal Research Laboratory, Drafting Room, Research Laboratory and Laboratory Service Room. Data Processing Facility, Receiving Room and Maintenance Shop are examples of minor room types within the major category, Support.

Where simplicity is desired, ease of managment may be facilitated by limiting the number of purpose titles. Even in a large educational institution, it has been found that use of Office, Classroom, Teaching Laboratory, Laboratory, Utilities Room, Conference Room, Receiv-

ing Room, Lavatory, Corridor and a few others can be sufficient.

The final essential information regarding the room inventory is the assignee of the room. A responsible activity must be identified with the room. It should be one which has the capability and interest to answer questions on at least basic requirements regarding utilities, space changes, accidents, keying, fiscal matters, utilization or other factors relating to operation of the space. The assignee should normally be the activity actually using the room since, if for various reasons which will be explained later, space is assigned to activities holding it for other purposes than immediate use, data compiled to show distribution and employment of space resources will be unrealistic. Although this objective may not always be achievable, it is nevertheless a viable one.

The assignee entry in the inventory will, in many cases take on considerable importance. The inventory list is frequently considered a type of ownership certificate, not unlike a Title or Deed. This is true even when the published policy of the institution provides no basis for it. The word "owner" is frequently used when identifying a space with an activity. Rights and privileges which go with legal ownership may actually be demanded.

Ongoing review of most of the space data and inventory records will occur in their normal use. Errors will be detected in the daily conduct of space business. In addition, the space administrator should have a consistent surveillance in process; but unless the number of rooms in the inventory is small, he cannot do the job alone. All or most of the major users of the data should

have review responsibilities and duties. The data for each activity should be duplicated and forwarded to them periodically for checking. Responses should be mandatory and, of course, receive prompt action by the data base manager, if necessary.

MINUTES

As stated previously, agendas and minutes of meetings of the committee should be prepared by the secretary. Such agendas and minutes, if properly filed for quick and easy access, will then become key supporting or reference material. Topics recorded in the minutes should be titled in order to facilitate indexing and future reference. The attached is an example of the first page:

CSP
6-9-84
Page 1

UNIVERSITY

To: Committee for Space Planning

From: Secretary

Date: June 9, 1984

Subject: Minutes of the meeting of the Committee for Space Planning on June 8, 1984

Present: P. F. Barr
J. A. Curried
J. de Moncha
J. M. Nodal
W. R. Pin
F. E. High, Chairman
O. R. Snow
E. A. Vico
K. L. Tom
O. L. Sparks
E. B. Schmineh, Socty.

Visitors: J. P. Doe
R. F. Roe

MACHINE TOOL LABORATORY

After several reviews of the project for partitioning and air conditioning in the automated drill press section of the Machine Tool Laboratory, the Vice President has recommended approval with a limit of $75,000 on total expenditures from the Laboratory Fund. Such project was originally estimated at $110,000. Authorization was thus given to colligate $75,000, making the total for fiscal 1985, $2,765,000.

AGRICULTURE BUILDING

P. F. Barr outlined status of the new Computer installation in Building 71. Approximately $250,000 will have been spent for additional air conditioning. An additional $100,000 is required for completion, however, every effort will be made to reduce this figure by solicitation of bids for at least the mechanical and electrical work. On this basis, the Committee authorized the Physical Plant to proceed.

NEW PROPERTY

Acquisition of new property at the corner of G and H Streets was announced by the Vice President and Treasurer.

ROBOTICS LABORATORY

Authorization was given by the Committee to assign office room 61-890, formerly in the inventory as Institute Reserve,

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The minutes can provide instructions for the community since the views, findings and informal directives of ranking persons are thus promulgated. For those who need information on space assignments, the minutes can provide guidelines or channels for future action. For the fiscal people, the money allowed for a given project will be specified, perhaps even with the source of funds. For persons planning new construction—scope, funding restrictions and perhaps information regarding the site will be specified in the minutes. Over a period of years a number of precedents will be provided. Decisions made and action taken, especially if followed by successful results, will serve as valuable guidance or example for future action. They will aid in future decisions regarding similar issues and can be used in a manner not unlike that for judicial records. In addition, an excellent historical account will thus be available.

The minutes are normally drafted before and frequently confirmed at the next meeting of the Committee. In space planning, it is necessary to promulgate information of the meeting, immediately after adjournment. A significant number of people may literally be waiting for the end of the meeting to learn of decisions made. Their next two years work, for example, may hinge on judgements of the Committee. The minutes must therefore be distributed soon after the meeting. Misunderstandings, errors, omissions or differences of opinion must nevertheless be expected in preparation of the minutes and they must be resolved. Unless rigid discipline prevails, which is probably not desirable, it is next to impossible to record precisely every important issue of the meeting. In fact, the findings may be covertly

designed by some members of the Committee to be purposely vague in order that the real impact of the decision must later be "settled in court" or determined by someone else, especially if a sensitive or difficult issue is thus avoided. The problem can be remedied by a simple administrative device as follows. A copy of the draft minutes can be distributed to selected or key members of the Committee with a covering note soliciting necessary additions, corrections or deletions. The system, incidentally, works better if such members are the type who normally respond promptly. The note can acknowledge that review is incomplete and that mailing to the members or the full distribution list awaits their response. Experience with this procedure has been highly favorable. Later disagreements, retractions and complaints are, for the most part, avoided. After incorporation of modifications, if necessary, the minutes can be distributed with assurance and filed as accurate historical accounts.

LOG

Some Committee chairman wish to have a log in order that outstanding issues and action or inaction regarding them can be seen at a glance. If indexed and updated at least monthly, or arranged as a systematic procedure for retrieval of information regarding previous decisions, it can be a definite time-saver.

One method for organizing a log could be a chronological listing of each topic of the minutes with adequate identification and preceded by an index. Entries could be similar to the following:

Activity	*Request*	*Date*	*Description*	*Response*
Combustion Facility	1,000 s.f. in Bld. 60	May 1984	Required for fuel delivery equipment	Rooms 60-530 and 531 June 15, 1984
Agriculture Dept.	Small Greenhouse	June 1984	20′ x 20′ lean-to	Approved with Brock funds auth.

A good source of information for the log is the minutes of meetings. Each item could be logged to provide a condensed list, in order of occurrence, of important issues and their disposition. After each request is granted or the issue resolved, the log entry can so indicate, be published for all interested parties and then filed as a record. The log of active issues can be copied and distributed periodically to provide information on status of projects. It is a good administrative device for avoidance of the all-too-frequent cases where necessary projects are overlooked, put aside or delayed to such an extent that excessive cost or dissatisfaction results.

Another method of log maintenance for important issues might be consecutively recorded entries such as the following:

Request	*Activity*	*Request Ref.*	*Response*
35. Space for Neuro-endocrinology research	Medical Dep.	Dr. J. Doe ltr of 14 June 1982	Vice President for Research ltr of 3 Aug. 1984

The latter presentation is much easier to maintain.

FLOOR PLANS

Heavy reliance is placed on readily accessible floor plans. They must be available for all significant buildings. Two hard-copy projections are useful, one with 1/16 to the foot scale and one of about one inch to 40 feet. The former is used for presentations and as a work sheet for space changes. The latter has portability and can be easily copied for attachments to correspondence. The former can be readily seen from an easel or chalkboard at meetings. Bound copies of the smaller projection can be easily transported by hand or mail. The smaller scale also has the advantage that an ordinary office copier can be used for duplication. Working plans for new buildings should be available at an early date. It is difficult or impossible to make space assignments without floor plans and at least rough floor plans should therefore be prepared as far in advance of the building completion date as possible. If plans drafting and assignments are delayed until after the new building is occupied, a host of problems can arise. Experience has shown that parts of the building may thus be occupied and assignments established by merely "laying claim" to the space. Occupation then determines the assignment. This condition may be difficult to correct. Confrontations can be expected in connection with at least a few of the new rooms.

Floor plans used for space planning should be simple and uncluttered. Former construction drawings are not satisfactory for this purpose. Rather, they should be drawn specifically for space administration and space change work. Mylar or other material which can be easily changed is preferable since ability to make multiple copies with good fidelity is necessary.

A qualified draftsman should have primary responsibility for updating and otherwise maintaining the master copies. Experience has shown, incidentally, that sustaining this position is difficult. As mentioned at the beginning of this chapter with regard to all supporting material, maintenance of floor plans may not be considered sufficiently challenging for talented individuals and interest can degenerate to neglect. Moreover, such neglect may not become apparent until after the plans have deteriorated to a state where a major effort is necessary to return to acceptable performance.

CORRESPONDENCE

An efficient office will, inasmuch as practically possible, generate pieces of correspondence to distribute information, especially where significant numbers of people are involved. Modern office aids, such as computers, calculators, word processors, dictating devices, duplicating machines and electronic typewriters have made the tasks involved much simpler. Little necessity exists, therefore, to be stingy with outgoing correspondence. It is one of the most reliable means of information delivery. Preparation of one message is all that is required to inform a large number of persons. Telephone and other verbal communications may be misunderstood or forgotten, especially several years later, but the matter is usually settled quickly if the relevant correspondence can be produced. The office copy of such correspondence, if properly filed, is an essential part of the supporting material for management of spaces.

MISCELLANEOUS

Many of the files and records mentioned in Chapter 2 are necessary and valuable supporting material. The Space Change Program, the file of Budget Authorization Requests and the Budget Summary or list of all space change obligations, together with assigned account numbers and method of funding, are excellent reference material. This is true, of course, if such material is adequately updated, indexed or stored for easy access. Since they are filed chronologically in the normal course of office routine they are, to a certain extent, automatically indexed.

Chapter 4
PROBLEMS

After an adequate space administration system is organized and running satisfactorilly, perhaps the next major task is development of solutions for the inevitable and constant stream of incidents which will appear. Some solutions may be easily conceived, especially if the office is well organized. Others will require all the experience, advice and information that can be mustered. Deep emotions, intractable attitudes and life ambitions may be involved. A number of cases or situations in the latter categories will be discussed. Several accommodations are also suggested. The word "accommodation" is deliberately used since a "solution" may actually not be achievable.

PLANNING

Failure to provide advance notice of requirements is a common fault. Few organizations can honestly boast such excellent development of plans and procedures as to have no embarassing surprises. Whether large or small, efficient or inefficient, closely regulated or flexible, none are completely free from demands originated at the "last minute" after all resources have been obligated. Lack of

planning can be at least annoying to those who must budget and otherwise provide for space accommodations.

Lack of planning by the community in general can be traced to a feeling that others should be doing the planning. After all, if a well-staffed planning section is in place, why shouldn't that office be responsible, might be the well-intentioned feeling. The system will break down, however, if all divisions of the organization fail to realize the essential need for looking ahead, anticipating future requirements, surpluses and cutbacks. One organization well-named their planning committee the Committee for Review of Space Planning. This reinforced the fact that divisions of the organization are responsible for their planning and that the mission of the central planning committee is one of coordination and oversight.

Establishment of a routine for submission of future requirements can guarantee good precedents. A definite date, prior to which each activity must determine and forward estimates of future needs, tends to encourage proper planning. Such practice could at least serve as a reminder. Additionally, dependable administrative service and an exemplary posture or orderliness by those who coordinate and review the planning process can be expected to prompt a similar response from the community. If experience indicates that a given sequence of services is usually forthcoming as a result of timely identification of future needs, then there will be a greater tendency to look ahead and declare or review requirements in advance. Conversely, tardy action and lack of planning may be a conditioned response, manifested by lack of incentives and caused by unstructured procedures. Although it may, on certain occasions, be neces-

sary for political or operational reasons to respond to demands and artificially change priorities, as a general rule, administrators who act with the same speed on timely requests as for late requests can expect to see fewer timely requests in the future.

As a last resort, and if the level of discipline will permit, deadlines may be established and refusal simply be given to late comers. If adequately informed of intentions, procedures and the difficulties incurred by late action, however, it is reasonable to expect cooperative responses.

EXCESSIVE DEMANDS

Requests are frequently made for more than warranted requirements with the expectation that less will be received than requested and the net result then be about what was needed. A related and similar problem appears when the requestor has honest needs which simply cannot be satisifed with available resources.

In both cases, much can be accomplished if the situation is properly explained. If, for example, the requestor is made aware of budget limitations or if his demand arises after the funding channel is overexpended, a simple description of the predicament may be sufficient. When relative priorities are involved, the explanation may be more difficult. It may then be necessary to state that one program must be favored in some respects over another. Most likely, however, good reasons exist which the activity on the short end cannot fail to realize. In any event, if concealment is not present or kept to a minimum—honest, open dialogue is the rule and alternatives are described, a greater chance is provided

for identification with the decision and, incidentally, enhanced credibility of the manager.

Activities that inflate requirements or are simply dishonest must, of course, be dealt with in the usual manner. Their extravagance or unrealistic demands must be exposed and responsible persons made accountable. Careful scrutiny of future requests, denials or other measures may be necessary. This is not an uncommon problem for management and is certainly not unique to space administrtion.

Although the above may seem simplistic and self evident, experience reveals frequent examples. A brief mention is therefore considered appropriate.

FACADE

Those with experience in space administration are familiar with the attitude held by many that ability to attract "clients" and general success of the organization are strongly dependent on quality, appearance and amount of occupied spaces. In this context, it is felt that an excellent facade will have greater attraction than an austere, though efficient, one. Justifications for expensive renovations or space additions frequently include allegations that current products or programs cannot be "sold" in an unpretentious environment.

Appearance of spaces is said to reflect on the priorities or importance of the group as seen by the supporting hierarchy. Simply stated, if a group of the organization appears to have fewer facilities or other physical support, then it is felt that management must not hold that group in high esteem, or such is the claim.

The foregoing may be perfectly valid in an organization where selling is the primary activity. If necessary to display and market specific products, then the sales environment and the attractiveness of the display are extremely important. If profit is the primary motive and increased selling means greater profit, then the arguments hold water.

Necessity for good appearance and comfort of spaces will also be claimed in order to attract the best employees. If not exaggerated or if held to a reasonable degree, a formidable argument can be built on use of this tactic for obtaining high calibre applicants. When greater than average effort and money is expended for this purpose, however, it may be necessary to determine whether or not the practice is being used in lieu of higher salaries. If so, an examination of the relative cost of the two enticements may be necessary. In some areas, space may be extemely expensive, especially if sophisticated laboratories are also demanded, and enducment by higher salaries may be much more cost effective, other factors being equal.

When considering the question of excellent appearance of spaces and the possible high cost therefor, questions may arise if the organization is supported primarily by grants, gifts or assessments. A donor may seriously resent use of his contributions for what he perceives to be luxurious accommodations. He may feel that his gifts are not needed by a fundraising activity that has spacious or even comfortable spaces. If the organization is supported by taxes or other assessments, supporting persons or taxpaying public may adamantly resent use of their involuntarily contributed money for other than essen-

tials. While a grant may not be given to an activity with dirty, disorganized or haphazardly operating facilities since condition of spaces might reflect on expected results, good arguments can be made for economy in preparation, renovation and equipage of spaces.

SPACE RETRIEVALS

Space is normally allotted for a specific purpose. When that purpose is served and the project completed, the space should be returned to the "pool" and recycled for another project. In many organizations, however, this is not the case. Either the work of the project is continued at a lower level, the people in the project cannot be feasibly or humanely relocated or other compelling factors perpetuate the untoward situation. Considerable difficulty can be expected when it is necessary to retrieve space after termination of a project. All kinds of reasons for compromises will appear. Depending on the level of attention to human factors, little space will probably be made available for further assignment.

In the typical case, a confrontation will be avoided and compassion will reign when it is necessary to reduce the space required for a waning activity. Effective action is frequently postponed in favor of an easier course. Retirements, pride, gratitude, friendships, critical budgets—a host of sensitive matters may be involved. Experience indicates that management frequently succumbs in the difficult cases if costs are not excessive. There are, however, methods for solving these problems. Accepting a fait accompli isn't necessarily required if good reasons exist for recycling the space.

If possible, terms of the original space assignment should be clearly delineated. The terminating date, if any, should be understood and disposition of the space after such termination specified. Any documents produced by these transactions should be promulgated from an office with substantial authority and routed to all supervisory and other parties as early as possible.

In some cases difficult to implement, the waning activity should be required or induced to support an oncoming activity. If the two activities are similar, all the better. By so doing, resources of the senior can assist the junior in what may be a difficult inception, after which the former can be phased out gradually and gracefully.

If the budget of an activity is overexpended and simply "losing money" with no compensating benefits, then the choice is relatively simple. Good reasons cannot be advanced for continued support and funding. Few arguments should be expected after a layoff from an activity confronted with reasonable proof that it cannot produce. Unfortunately the situation cannot always be so easily categorized.

Disbanding a group is frequently difficult because of personnel employment considerations. For humanitarian or operational reasons, it may not be prudent to terminate personnel involved. Such persons may have skills which cannot easily be recruited again if required for subsequent projects. It is therefore wise to have plans for reemployment of people prior to termination of their project or have clear understandings regarding tenure. If possible, alternate positions, especially for the critical skills, may be appropriate. Again, prior and early notice regarding these understandings is important. The direct

connection with space matters is axiomatic.

In this context, management might attempt to deal with personnel in a similar manner to equipment. It may be doctrine, for example, that equipment obtained for a project be retained by the organization and recycled within the organization in support of subsequent projects. Having served its purpose or if not needed, then investigation can be made of use by outside activities. An agency may be available for this investigation such as that which redistributes or disposes of surplus government property. It is logical to assume that the skills and talents of people can also be recycled or reemployed in a similar manner, even if retraining is required. Disposal of equipment in many organizations is highly organized, involves rigid procedures and strictly regulated. This would also be necessary in the case of personnel.

If it is true that the equipment model can be related to personnel, as mentioned above, attention must be directed to its weaknesses. Recycling of surplus equipment may not be carried out as it should. Experience has shown that surplus equipment is frequently found idle long after its period of service. It is seldom surveyed in a timely manner and declared excess after its obsolescence. Moreover, if storage space is available and inexpensive, a rationalization might be made to the effect that little or no additional cost is involved in holding the unused equipment. This argument is, incidentally, difficult to answer. Personnel skills are less easily stored, however, since some form of retainer is usually required to hold idle people in "storage".

LIMITED AUTHORITY

It is generally required that activities comply with rules of good practice in dealing with space. Apparent leverage to require such compliance is nevertheless frequently absent. A simple example could be illustrated by a senior activity that holds poorly utilized space after expiration of an assignment. Lets say that the space in question is occupied by obsolete stored material which should be declared surplus and the activity has, by neglect, not taken action after reasonable notification. The situation may also be complicated by the otherwise fortunate viability and recognized excellent performance of this activity.

For good reasons, those with authority to correct the situation may be reluctant to confront or possibly offend the activity from which the space must be taken. Serious morale problems, significantly affecting performance of the entire organization, may appear if management takes full responsibility for an unpopular, though necessary, decision involving a space reassignment. In such cases, it may be necessary for lower officials with less authority to carry out the necessary evolutions. Although sacrificial for the lower-level individuals, credibility and popularity of high-level officials may at times be essential for the organization. If the job must be done it may be a distinct advantage for the group as a whole if the "boss" can maintain a position which has few confrontations.

Continuing with measures which can be taken by those with limited authority — as many important transactions as possible should be in writing. The possibility of complicating misunderstandings is thus reduced and many potential problems avoided. A minor fact estab-

lished or recorded in writing by one with little authority may be fully recognized several years later as though it came from top management.

The activity in question should also be informed concerning the cost involved. High expense of underutilized space is often overlooked. If the language is structured in terms of money, comprehension may be facilitated. A fiscal context may be a good common denominator.

Suggestion of alternatives or guidance may also be in order. An activity that is consuming valuable space for storage of unused equipment, for example, may not be familiar with the procedures for and assistance available for disposal of surplus property. Because of ignorance or other reasons, the task may frighten them and information regarding systematic methods for discarding no-longer-needed material may be gladly received. Significant space dividends could result.

One of the most powerful methods for insuring compliance with rules of good practice, available to those with limited authority, is denial or slowdown of further services. Although overt use of this tactic may lead to other problems, there can be a good reason for subtly expressed reluctance to provide maximum effort for uncooperative activities.

Another logical way to call attention to the importance of recycling and better utilization of space is to seize on the opportunity when space requests are received. An activity with underutilized space will most likely realize the importance of better existing space utilization when denied a request for new space or when

confronted with the fact of their idle space at the time when they are asking for new space.

SPACE CHANGE COSTS

Probably no secrets remain for reduction of space change costs. Few new ideas can be prescribed. It is useful, however, to be reminded of several basic facts in this regard.

Experience has shown that expense of most space change projects is indirectly proportional to the degree of clientele-participation in the funding of the project. If the activity is "paying for it" itself, that is, providing funding from a budget of the activity as opposed to use of a central source — not the responsibility of the activity, it is much more likely to economize. This is especially true in the case of furniture purchases. It can invariably be expected that the more expensive pieces of furniture will be requested when no budgetary responsibilites are involved. Savings inevitably appear when, for example, it is necessary to balance the effect of a furnishings purchase against that for other needed material. Funding of such purchases should be provided from budgets controlled by the requesting activity.

Publication or codification of standards may reduce costs or at least make budgeting easier. A statement regarding items of furniture or amount of space which a given position or rank can be provided, may be appropriate. A junior person may, for example, be allowed 120 s.f. of space, a desk, three chairs, a file cabinet, a waste basket and a bookcase. As rank or seniority increase, the allowed inventory could increase. This practice would

tend to reduce excessive demands or extras and lead to less cost. The difficulty, however, seems to rest primarily with establishment of standards. Universal agreement is seldom obtained and, even if achieved, transition to a standardized allotment of space and other accommodations, in itself, is bound to be expensive. Additionally, codification would necessarily be generally promulgated and could become a prime target of controversy for more than the disgruntled.

While space changes should be reviewed by competent persons with authority as a matter of good practice and standard doctrine, such review will also lead to economies. A requester who knows that his application and plan for an office renovation will be subject to scrutiny by persons who know and can insist on appropriate standards will seldom press for more than his share. Types of standards will inevitably come into existence in one form or another in a well administered organization, even though they are not published. Application of such standards may have practical workability and could lead to a superior, yet informal, arrangement.

General knowledge of fiscal constraints may tend to reduce costs. Where the organization is kept informed regarding "market prices", the fiscal state of the organization and general ability to provide facilities, appearance of unwarranted demands is less likely.

The practice of designating a set amount of money to each activity for space changes is frequently proposed. It seems logical and an economical measure that a specified budget for each activity would tend to hold down spending and, incidentally, make for easier fiscal planning. It could be reasoned that a determined effort would

thus be made to hold to the given limits. It has nevertheless been found that spending will invariably come in line with the amount of the established budgets. If an activity is given a certain amount of money it will all be spent, especially if the unexpended amount must be returned at the end of the period.

FISCAL PROBLEMS

It is a rare activity indeed that has unlimited funds. Most will have the constant challenge of managing shortages. The approach to normal tasks, however, should be approximately the same. Unlimited resources should be managed in the same economical and efficient manner as sparse resources. If fiscal wherewithal is lacking, there is no choice but for good space change management and if money is no problem, good management is essential to keep it that way.

The space administrator seldom has fund-raising added to his duties. He normally isn't required to supply the money for space changes. It is mandatory, however, that he use or recommend use of funds wisely. Expense of space changes can have considerable impact on the fiscal operations of most organizations.

Although the space administrator may not have responsibility or be qualified for estimating, a monitoring function is at least required. The administrator will learn what costs are reasonable for various tasks and materials. Since space change prices vary over a wide spectrum, depending on the nature of the activity served and the particular requirements, few rules can be made. Administrators can cause reduction of cost by at least directing good advice to the attention of those in authority.

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Fiscal problems can be avoided to a certain extent by educating the community regarding the general fiscal situation. The administrator should keep fiscal and decision making officers informed regarding extent of their authorizations for spending. A simple report such as the following can be used:

[illegible] OF SPACE CHANGE ACCOUNTS		
FISCAL YEAR 1985		
2-15-84		
	GENERAL	SPECIAL
FY 1984 AMOUNT	1,000,000	3,000,000
COMMITTED TO DATE	985,583	2,948,374
AVAILABLE	914,417	951,626

BEST COPY AVAILABLE

Budget overexpenditures can be avoided by adequate bookkeeping. Additionally, experience has proven that frequent dissemination of information regarding status of accounts, as mentioned above, will ensure that responsible personnel are cognizant of available funding. The level of spending is frequently tempered by the unexpended balance of the funding source. It has been noted, incidentally, that the number of requests significantly decrease when it is known that the budgets have been overexpended.

SPACE HOARDING

It is, of course, a well known fact that activities frequently hold space which is not needed. This, however, is not necessarily a connivance. Credible cases can be

cited where necessity to retain space may be justified as a "security measure", that is, an assurance that future space demands can be met. An honest effort may be attempted to hedge against anticipated space shortages. Preparation for forecasting future expansion may be the relatively benign motive.

Varying degrees of honesty may be observed in hoarding space. Downright deception is not unheard of. An impression of greater utilization than actual may be given by filling an area with little-used equipment, possibly equipment that should have been disposed of years ago. At the same time, it may be alleged that the equipment is too expensive to declare surplus and the space is therefore absolutely essential.

Another tactic may be to fill an otherwise underutilized room with part-time people, giving them full-time space accommodations. Their stations or equipment may appear active but the apparent usage is only illusionary. Being part time, the people involved could, perhaps more efficiently, be sharing facilities. This may not be realized by the inspector who is attempting to evaluate utilization.

A less subtle sham might take the form of a demand for space expansion which cites actual intense usage or perhaps overcrowding while another area of this activity, perhaps less visible, is grossly underutilized. If the person making judgements regarding need for expansion is unaware of the underutilized space, a bad decision might be made.

Obtaining temporary assignments, since they are normally easier to grant, is frequently used to acquire space permanently. The termination date is then ignored.

Space may be added to the inventory without full justification by means of this device. Such situations can nevertheless be controlled if assignments are made in writing and terms of the transaction clearly specified.

Vigilance, discerning attention and competence of reviewing authorities can reduce space hoarding. No opportunity to confront the activity with such malpractice should be overlooked, especially at times when space expansion is requested. If it is felt by the community that no surveillance is in effect, violations will certainly multiply.

A word of caution must be inserted, however, in that space hoarding is frequently practiced by the most capable managers. In so doing, they may be planning in advance in the best way they can and thinking of the interests of their group. Their motives, at least, may actually be commendable.

COMPLAINTS OF HIGH COST

Repeated complaints and challenges can be expected regarding costs for space changes. It seems that everyone becomes an instant expert on construction costs when their space is being renovated. Frequent reference is made, for example, to a similar job in the "Oshkosh Mountains" which was done for significantly less money. Clients may doubt the validity of elements of the project such as fees, contingency additions or assessments. This seems to be noticed especially when a new physical plant or space administration organization is being formed and when logical arguments may not have experience as backup.

Even with a good experience base, it is necessary to periodically review costs of operations and construction. Attention must be given to the level of aesthetics and its expense. Finish and appearance may be inconsistent with basic requirements. An exaggerated example might be a laboratory renovation for which an interior designer is used. Assume that an expensive sculpture is installed in the laboratory. The cost might thus be raised without contribution to the mission of the lab. Situations such as this can provide fertile ground for high costs and resulting complaints. Surveillance and frequent evaluations are necessary.

Clients may complain about the cost of building code compliance. In locations where rigid code standards are necessary or required, space change projects may be significantly more expensive. Renovations in old buildings, for example, may require complete replacement of the electrical system. Perhaps all light fixtures must be replaced because the old reflectors are made of combustible material. The stairways may need to be completely enclosed. Additional egress from meeting rooms might be required. A host of changes may be necessary to satisfy local regulations with the resultant affect on cost of the projects. The activity for which the work is being done may even be opposed to the improvements for code compliance and complain about the high costs—largely a result of such compliance. It would seem that the endless hassle on such matters could be avoided or at least mitigated by liaison with and education of such activities. They could be apprised of the real fact that the complaints must not be directed at the local implemen-

tation by the Medical Department, the Safety Office or the Physical Plant but rather to the city officials and legislature who are the instigators of the regulations.

During periods of high inflation, another cause of cost increases comes into play. Although this effect may seem obvious, "clients" for space changes frequently fail to realize the impact, especially over a period of years. An inflation rate of 10% may not raise eyebrows for one year but, persisting for four years, the 40% increase can cause new and serious funding difficulties.

Caution is advised in identification of greater-than-necessary costs. Projects may be wrongly considered expensive after comparison with other supposedly similar ones. It is necessary to establish valid bases in such comparisons or realize the differences between them. A laboratory alteration in a new building, for example, may have drastically different and less costly requirements than for an old building. One which requires significant changes in electrical and plumbing facilities may likewise be dissimilar to one which requires only minor changes. It is misleading and perhaps unfair to make policy-changing conclusions on the basis of comparisons of two projects which are not alike.

The controversy over space change prices may be enhanced or aggravated when the institution has its own shops and capability to do space changes, as opposed to the situation where all work must be done by outside contractors. In the former case, direct costs would normally be lower due to the fact that most overhead is indirectly charged. If work done by the internal shops and trades turns out to be higher, it may be alleged that the profit motive is missing and that all projects would be

significantly less expensive if given to outside contractors, especially if bids are made for the work. It may be necessary to prove that either the outside contracting or the local operation is best. Accordingly, several projects can be estimated and completed by the internal facility and also by outside contractors. Similar projects could be selected and one contracted while the other is completed by own employees. Comparisons could be made regarding time for completion, estimated and actual costs, indirect costs of the internal facility, skill of tradesmen, compatability with plant operations and persons for whom the work is performed, as well as other pertinent criteria. Test cases such as this have been used with considerable success. The debate on relative costs is thus ended.

Experience has shown that the local shops and trade personnel of an institution are generally best employed for maintenance work and that most space change construction should be given to outside contractors. Local people should normally do space change work only when schedules permit or when diversion to space changes means better utilization of their time during slack maintenance periods. Even though contractors are given much of the space change work, employees of the institution must participate to a considerable extent and their input is absolutely necessary. Specifications, drafting, estimating, monitoring, bookkeeping, existing building plans, shutdowns, coordination with local operations and supervision must be provided by regular employees. These tasks usually require intimate knowledge of the plant and the people for which the work is performed.

Finally, it goes without saying that high costs should not be due to inefficient or wasteful operations. As mentioned previously, constant review and surveillance of the expense for space changes is, of course, necessary.

RECYCLING SPACE

Fortunate organizations can demolish old unserviceable buildings and build new ones to satisfy changing demands. In many cases, however, it is necessary to reuse old buildings and renovate the old spaces. In the case of institutions operating primarily from grants, the only source of expansion space for administrative activities may be the old space, vacated by those who can raise money for new buildings. The following problem may arise when the old area is recycled and renovated for the new occupant.

An academic department of a university vacated significant blocks of space after occupation of a new building. The vacated areas housed primarily old offices and outdated laboratories. In the preceding years, the former occupant had repeatedly requested renovations and alterations to improve appearance and update facilities. Air conditioning was included in the requests. The air conditioning installation was denied each year, however, and only minor, superficial renovations were made. Reasons of economy were generally given and the relatively important research and teaching persons involved were constantly refused the renovations which they considered essential.

Immediately after the move, however, the old spaces were assigned to administrative activities. Renovations were made. For some reason, probably not deliberate

but due to pressure from ambitious, vocal individuals, the space was renovated to a considerably higher level than previously. Air conditioning was installed. A good deal more was done for the new occupants than had been asked by the former.

Serious complaints were then heard, especially from the "lower echelons". Formerly rational people were even emotional. Remarks were made about lack of attention to needs of the teaching and research community while satisfying peripheral or even frivolous demands of administrative offices. A complicating and unfortuante schism may have existed, incidentally, between academic and administrative activities which added fuel to the controversy. Competition for departmental budget money was also more intense than usual at this time. It was alleged that, in behalf of fiscal responsibility, austerity had been observed by the former occupants and demands for significant expenditures were withheld. The administrative activities, on the other hand, were given amenities which were not in keeping with real needs. Double standards were claimed. Being highly visible in the center of the campus, the renovated spaces were a source of contention for a number of years.

Persons with experience in space administration will recognize the foregoing as a relatively common problem. Similar cases can always be expected, not necessarily caused by space issues. There are precautions or preventative measures which can lead to avoidance or minimized effect of such cases.

It seems to be a law of the community that space demands or the requested level of appearance increase whenever a new building or other facility is built. This

reaction may be a simple and natural response. A new car in your neighbor's driveway tends to increase your desire for a new car. If this influence did not have a benign leveling effect, the community would soon have a type of class system in effect with a privileged group on one hand and the remainder, envious.

Considerable resentment can nevertheless be engendered when double standards exist, especially when the higher standard for one group is not necessarily merited. Even though it is difficult to establish standards, as mentioned previously, careful attention should be given to relatively equitable distribution of space change money and, concurrently, the level of appearance it will buy. The problem is greater than might generally be realized since several forces may be dedicated to excellence in design and outfitting for the space change. The first is the client who has, of course, a personal and vital interest in the spaces which he will occupy. Less obvious, however, is the influence of the architect, designer or builder, especially if they are on salary and profit little from any reduction in requirements or cost savings which they can contrive. Their advantage is in pleasing the client and items which cost money, whether they are within reason or not, frequently accomplish this end.

Many of the problems in recycling of space can be minimized if they are anticipated. Then attention can be given to sensitivities, equitable and wise distribution of resources and education of interested parties regarding action being taken as well as the reasons therefor.

MINOR INCIDENTS

Seemingly minor incidents in development of a space change may expand into significant problems. A space change or space related project may be the catalyst that triggers a serious controversy. An institution can be severely restrained in carrying on its work in the community when dissidence is created by a series of minor incidents. Student unrest in the 1960's, for example, caused untold disruption in the operations of colleges and universities. Space changes and necessary building construction may be delayed or stopped altogether.

An example of a minor incident at a major institution was observed when an excellent contemporary sculpture was erected beside and on the site of a new building. A great deal of thought and planning by the architect of the building, the sculptor and the administration was given to the placement or setting of the sculpture. It was finally decided that the optimum location should be the open corridor between two dormitory buildings, immediately adjacent to the new building. Representatives of all activities in the vicinity, including those from the dormitories, were consulted or briefed prior to the installation. The ensuing problems were nevertheless not foreseen.

A small but vocal, active and resourceful group felt that the site was under their purview since it was adjacent to a courtyard between the two dormitories. The sculpture was immediately outside their window where ideas to express protest would have easily popped into minds of less intelligent persons. They apparently did not understand or appreciate the 15 foot high sculpture constructed of one inch steel. They were not impressed with the

superior credentials of the sculptor nor with the government mandate that required an artful installation to be identified with each new building where federal funds were involved. One of the group mentioned that the cost was excessive, even though indirectly funded, especially at approximately the time of another major tuition increase announcement.

The group expressed their disapproval by throwing thin containers of paint at the sculpture, draping rolls of paper on its appendages and depositing material resembling digested food at its base. When the sculpture was restored by cleaning and painting, the desecration was repeated, each time with an additional touch of diabolical originality. Attempts by highly qualified artists and administrators to educate the perpetrators regarding fine sculpture, at best, and social responsibility, at the least, were not entirely successful. An attack with green paint followed next.

A considerable amount of time and effort was required to quell the dissidence. Cleaning after the protest pranks was not inexpensive. In a different setting the sculpture might have been given wide acclaim, rather than an obsessive and persistent disapproval.

Solutions for such incidents seem to be difficult to establish. Recognizing the potential situation, anticipation of emerging problems and advance information for and liaison with interested parties will probably help the most. There is, however, a practical limit on the amount of time and effort which can thus be spent. There is also a point at which, under the circumstances, rational behavior and normal understanding must be expected or demanded.

Chapter 5
CONCERNS OF MANAGEMENT

A significant number of space matters must be personally handled by top management. Delegation may simply not be possible. Regardless of capabilities of staff members, their authority and access to resources may be insufficient to implement important tasks. The space to be occupied by a new senior executive and the cost of its preparation, for example, will ordinarily require the individual attention of one or more top managers, especially if resources are lacking. The following is intended to discuss other space matters which may require direct participation and special concern of senior officials of the organization.

SPACE DATA

As previously stated, management needs a relatively accurate list of all spaces of the institution, along with important characteristics of the space. Area, purpose and assignee are the least which must be provided. A proper decision cannot be made regarding requests for additional space or changes thereto without at least a general idea of the amount and type of existing space.

Questions are automatically justified; for example, if an activity having 300 s.f per person requests additional office space, especially if the norm is about 150 s.f. per person and offices make up most of that activity's inventory. A contemplated move of an organization, and the implementing decisions, immediately prompt a need for space data. If the location to which the activity might be moved has 5,000 s.f. of potential office space and the activity currently occupies 10,000 s.f. of laboratory space, direction of planning must obviously be shifted. Quick response with space data is unquestionably a valuable time-saver for management if not an absolute necessity.

To be effective, the program and system for collection and storage of space data must be flexible and manipulatable. The number or area of laboratory rooms in a given building may be needed or a list of offices, rooms and their total area held by each department, may be required. Portable and filable floor plans must be available to illustrate information on individual rooms. Many permutations and combinations of space data and floor plans will be demanded periodically and on short notice. Additionally, the system must have a capability to readily accept new data which will be needed because of inevitable and frequent changes. An important funding decision may, for example, require information regarding the percentage of space devoted to research as compared to that for teaching or production, in addition to other recorded data. Clarity of presentation is important as well as accessibility, depending on the particular needs of the activity. It should nevertheless be noted that each additional bit of data has a cost, whether it is immediately apparent or not, and no more than that

which will be used should be required. Experience has indicated that too much information is called for, at least initially. The amount and type of information to be provided should be determined by the declared needs of the organization, not by the capability of the system. All too often, an excessive and unneeded amount of information is given to impress management, justify existence of an over-sophisticated system or only to demonstrate that the program has the capability to produce it.

ARCHITECTURAL HERITAGE

Existing buildings, in themselves, may constitute a significant constraint. Most institutional buildings are designed in standard modules and, especially in the case of the substantially-constructed college and university buildings, the basic configuration is not easily changed. Construction in modules is nevertheless advantageous, at least in consideration of flexibility. When designing an academic building, it is impossible to foresee all future space demands and a common practice is therefore to use such modular construction, with services conveniently located. Subsequent space demands may nevertheless not be compatible with these modules and the previously intended flexibility may not materialize. Because of the basic configuration, changes may be difficult or impossible. Management may find itself locked into room configurations that are inconsistent with current needs. An institution, for example, might have a 300 s.f. module or bay in most buildings which is adequate for many years until increased numbers of personnel require additional office space. The 300 s.f. bay may have been ideal for large offices which were suitable for a

smaller number of people. When the population of the organization is necessarily increased, however, the larger offices can no longer be justified and yet the modules are difficult and expensive to divide. One half a bay or module may have an unacceptable shape or aspect ratio while a division into three rooms may produce offices that are too small, especially when common or corridor areas must be provided for access to the rooms. Ingenious designs, compromises and modifications of requirements could possibly lead to an accommodation but a price could be paid and satisfaction not achieved. A real constraint is thus forced on management.

Construction of a high-rise building may be the result of a sound decision and good basis even though construction costs are generally greater than for one or two story buildings. In an urban community where land is costly and scarce, many good reasons can be given in behalf of the concept for a tall building which will take up a minimum amount of land and yet provide plenty of space. The tall building can lead to the most economical use of available land. It could be found, however, that a high-rise building is a liability, especially if the space per floor is small. Intellectual and social communications may suffer. A department, for example, which profits from close associations among its members may find that interchange of information is decreased considerably in a building where it occupies more than one floor. Vertical separation is frequently much more serious than horizontal separation. It has been observed that people will gladly walk down the hall to informally exchange information but hesitate to use a stairway or elevator for such intercourse. The same situation might be created

when an activity is located in two different buildings such that they have no common roof. It seems that communications are not as spontaneous and therefore not as complete when face-to-face conversation depends on first going outside. This is especially true when a coat or umbrella is required in transit.

CENTRALITY

Many educational institutions have large campuses and dispersion of activities is managed with success. Major sensitive or ambitious divisions may not accept dispersal, however, demanding locations in the center of activity. A department on the perimeter of the campus, for example, may have people who feel slighted. This is especially noticeable in large urban universities where land is at a premium. Most divisions wish to be close to the focus of activity which is usually the president's office. Frequently observed in an urban institution is the feeling that an office farther away than the president's outer office is in the boondocks. Although the necessity for and ability to provide central space may be debatable and difficult in some cases, it can be a real demand and call for direct attention of top management.

Status in the institution is frequently measured by degree of centrality, that is, persons with the highest status are generally located toward the center of greatest activity, other things being equal. It may be felt that the most important persons should have the greatest access and proximity to the president and his office. A prevalent attitude is that the people most important to the president should have the greatest intellectual as well as locational accessibility to him. The "president," in this

case, is the title used to designate at least the symbol of central authority. Whether or not consideration of status in space management is justified, it nevertheless can be expected to be at least a pervasive reality and proximity to the center of activity can be a major concern.

Problems in this regard generally occur when a difference of opinion exists regarding status of the individual for whom the central space is requested. If higher than warranted status is ascribed or if the higher rank is self-designated, a number of obvious difficulties can arise. Space changes and management for such cases are usually more involved and cost more than necessary.

Contiguity of persons of like or related disciplines can be extremely important. Easy access to colleagues will generally encourage exchange of information. Some of the greatest technological breakthroughs have been made or contributed to by great men, located in close proximity, and able to easily meet on a drop-in basis. It has been claimed that intercourse of this sort may not be possible, or will be much less effective, if the distance is above a certain limit or if, for example, it is necessary to walk outside the building to converse with a colleague. As alluded to previously, it seems that visiting among professionals on an informal but official basis, diminishes significantly if the visitors are at such a distance that they must be exposed to the weather enroute.

OBLIGATIONS

It may be customary to provide special facilities or show greater effort in granting space requests in behalf of newly appointed supervisory or other leading personnel. A renovated office and new furniture might at least

be provided. A completely new laboratory could, for example, go with the new job. A kind of dowry may be logically expected. The new or special facilities may be part of the bargaining process during the search, inducements to accept or simply a way of expressing warm welcome and the support which good management is accustomed to provide. Assurance is frequently given an incoming important person that he or she will be given additional or improved space to start the new regime on the right track.

Special compensability for important new employees is most often a benign or admirable posture since a good institution will strive to recruit the very best talent possible and this means a good introduction as well as adequate facilities to carry on the appointed work. It may be part of what should be an obligation to obtain the best talent possible. It is not unreasonable to expect that, in turn, the best tools to do the work will be requested or demanded.

Significant cases will be observed where terms of an offer are made by persons who overestimate resources or are unfamiliar with the facilities which can feasibly be made available. In an effort to obtain an outstanding person who could be of great value to the organization, obligations may be incurred which cannot be fulfilled without excessive expense or adverse affect on existing capabilities. If assurances are made without wherewithal for implementation, an obvious problem is created. When the obligated space or money is not available in the right place, in sufficient quantity or at the specified time, then resentment is bound to follow. Misleading promises of space and facilities can be extremely serious, regardless

of intent. They can lead to problems, not the least of which could be a significant drop in morale. Such problems can obviously be of great concern to management.

SECURITY

As new programs are implemented and old ones lose momentum, reallocation of space is necessary. Unless resources are unlimited, spaces which have served their purpose and are no longer active should again be made productive. This is not always easy, since assignees may consider the slowdown only temporary. They may be, quite naturally, planning for subsequent increases or a return to former high levels of activity. It is usually much easier to hold that which is assigned than obtain new space at a later date, just as it is easier for management to justify space for expanding programs but difficult to retrieve the space when activity is waning. Subsequent reassembly of an adequate space inventory, with all its effort and difficulties, is not ordinarily a desired prospect. There is security in continued possession of assigned underutilized spaces and people will frequently go to great lengths to protect themselves in this regard.

Although such hedging against lean space years is common, it nonetheless should be of direct concern to senior executives. It is therefore repeated to a certain extent herein, though briefly discussed in chapter 4 in the context of significant problems encountered in space management.

Where the penchant for security takes malignant dimensions, offending activities must be confronted. This may actually be a simple process. If the situation is realistically defined, cooperation will frequently follow

without argument. If reason does not prevail, full authority must then be given to correct the situation. It is not difficult for qualified persons to determine whether or not equipment, which has been deceptively located in the space to create the illusion of full occupancy, is active or unused and outmoded. It is also not difficult for supervisory or experienced persons to determine whether or not the space per person is above or below a justifiable average. Additionally, if the underutilized space in question is badly needed for another specific and important purpose, the impact of the confrontation will be much more effective. It may be that useful experience is thus gained and need to stipulate tenure or conditions of future space assignments, better illustrated and justified.

LIFE STYLES

The manner of professional or personal life of individuals in the organization may have an impact on amount and type of requested space. Costs, in terms of money and effort of space managers, will be affected.

An example is the typical use of classrooms in a large university. Demand is generally greatest during the hours between 10:00 A.M. and 3:00 P.M. Professors who are accustomed to teaching at this time, for various reasons, may require that their classes be given priority. If at the same time a shortage of classrooms exists, a serious problem can arise. It can be solved only by ignoring life styles of the professors and their desire to have classes in the middle of the day, or maintenance of the classroom inventory at such a level that teaching spaces are available for all requesters, even during peak periods. Similarly, if most of the faculty require classrooms located close to

their offices, outlying rooms may be left vacant with the resulting shortage in certain locations and surplus in others. Preference of faculty or students for classrooms at a certain time and place of their choosing, if always satisfied, may be expensive. Perhaps a typical example is the case of a university which found by simulation studies that scheduling classes at other than prime times, i.e., 8:00 A.M. to 10:00 A.M. and 3:00 P.M. to 6:00 P.M. could reduce classroom inventory requirements by as much as 25%. The degree which the institution wishes to conform to the life styles of employees, whether or not intentional permissiveness is involved, may have a good deal to do with the size and expense of the space inventory.

On the other hand, the organization may benefit from recognition of these life styles. Honoring them, at least to a certain extent, could be fully justified. The number of available classrooms and their cost may not be as important as other factors. Efficiency may suffer from meticulous use of each available classroom hour. Students with successive classes at opposite ends of the campus, for example, may have problems. Morale may be a strong factor. Discontent caused by 100% utilization may turn out to be more costly than a few temporarily idle rooms.

There are also unjustified demands from those whose chosen life styles are not based on reality. Some will consider their deserved status, in terms of space and other accommodations, greater than actually warranted. These cases of self-appointed elitists are usually a greater problem for the lower administrative echelons but, if left to their own devices, can have a significant effect on space and fiscal resources of the organization.

In an educational institution, a person with extraordinary ability is likely to be provided or demand more and better space than his professional inferiors. In an academic institution a Nobel Prize winner, for example, will ordinarily be given excellent accommodations as compared to that provided an average assistant professor. Though perhaps a hard fact, it is reasonable to assume that management will feel that the former can contribute more than the latter and will try to provide the conditions and tools for such contribution. In summary, there will be obvious trade-offs which are related to life styles of space users, which management must balance.

ENVIRONMENT

A major institution will, of course, affect and be affected by the surrounding community. The adjacent city or town in which it is located may actually have a profound influence, depending on the issues arising and the particular bent of the local politicians. First, the economy and building codes of the area will determine, in part, prices of labor, materials and general operations. Cost of space changes will ordinarily be much greater in an urban setting, for example, where code requirements are generally rigid, "downtown prices" are in effect and labor unions firmly established. Second, taxes or "in lieu of taxes" will often be determined by the amount and type of space which is held in the city or town by the institution. Some may go relatively tax-free and others given a levy at every turn. Degree of welcome, desire of locals to have the institution's presence, the number of

local people employed, any real or perceived hazards which may have been created in the vicinity or the ease with which the institution could move out of the area if dissatisfied, may affect its tax situation. Third, attitudes of the community will determine, to a certain extent, the nature of operations and thus affect use of space and changes thereto.

If the host city is sensitive to expansion of the institution, planning of new facilities will inevitably be constrained. Great efficiency and flexibility of land use may be necessary if horizontal expansion is thus restricted.

A relatively sophisticated community may seek to control or regulate certain activities of the institution, especially where moral, safety or health hazards exist or can at least be alleged. Colleges and universities have, for example, been required to submit to regulations or other limitations of the local authorities regarding recombinant DNA research. Control by the local community of research and teaching involving nuclear materials and laboratory animals has been obtained in other cases. Incidents are recalled where an entire industry, with housing and city services developed in a previously uninhabited region, was forced to shut down or drastically reduce operations because of complaints by the city which it spawned. The community may have considerable expertise for taking such action, even provided by persons from within the institution with different political persuasions. Satisfaction of the local regulatory or oversight committees can be expected to have an extremely high price tag and, of necessity, be sophisticated and complicated. Heavy demands will thus be levied on management.

Finally, cultural attitudes of the institution's community or surrounding community can cause significant space demands. Most colleges and universities provide, for example, special facilities and accommodations for black student and employee programs. A community bent on emphasizing Indian rights, women's rights, education of underprivileged, college preparation for local young citizens, public school tutoring, legal assistance, handicapped facilities, liaison programs, retirees' programs, city planning assistance or other special interest causes, can be expected to have commensurate space requirements.

DYNAMICS

A dynamic organization can be expected to have a greater number of space readjustments. Sufficient space of the appropriate type for such organizations may not be available without frequent architectural manipulations. Typical of conditions in a dynamic organization, new programs will be arising while others are losing importance, with a continually shifting space situation. It may be necessary and completely justified to construct a laboratory for a given purpose and two years later completely revise that laboratory for another function. Although greater effort should be exerted to avoid such practice, since the cost is obviously high, constantly changing needs may take precedence.

Costs, thus incurred, may be greatly reduced by design of buildings with greater flexibilty and a module type configuration which can be modified with relative ease. Current architectural and engineering skill has accomplished a great deal toward this end.

SENSITIVITIES

Few if any organizations operate entirely by rules, regulations and codified instructions. The system must frequently be modified and bend for sensitivities and idiosyncracies of individuals and groups. This is true even though such individuals and groups may not act with complete logic and rationality. Allowances often need to be made. Reduction in such exceptions and allowances may call for the finest talent and skill of top administrators. In any event, transactions in space administration can be affected since, space, or the place where employees "work and live," is bound to arouse sensitivities if any deviations exist.

Certainly not all demands arising from sensitive issues or persons will be unfounded or capricious, and reasonable caution and evaluation is necessary. The effect of space evolutions on persons or the environment should be a prime consideration in each case. It is not necessary to pander or patronize but rather to be aware of and allow for bonafide sensitivities.

MONEY

Few persons will argue with the real effect of money in the process of space manipulation. Although some benefit can undoubtedly be realized by skillful juggling of priorities, sustained excellence requires that funding keep pace with responsible demands of the staff. Where the staff is expected to be at the frontier of their field, commensurate monetary support is mandatory. Probably the closer the staff is to this frontier, the greater the funding requirements. Similarly, the greater the activity

and innovation involved, the greater is the likelihood of high costs in money and space.

Opportunities for funding may vary. Money may be available for one type of work at a particular time and extremely difficult to provide at another time. Research relating to health and medicine, for example, was considered especially important in 1976 and 1977. Funds for such research were relatively easy to obtain by valid proposals. During the same period of time, however, it was considered difficult to find funding for U.S. research in neutron bomb technology, or similar pursuits. Grants and gifts were relatively plentiful for a major building of a space program in about 1965, while ten years later funding for even the on-going outer-space research activities was difficult. Although some may criticize such shifting priorities, their affect on funding for certain programs is a fact and must be addressed as a major consideration if not a serious obstacle in the administration of building space.

The secret lies in the prevailing effort to inform. If management endeavors to cause people of the organization to be aware of the existing fiscal situation along with its limitations and capabilities, they will be much more inclined to identify with the goals and aspirations of the leadership. While there will be arguments with priorities, serious opposition to carefully considered decisions by management should not appear if pertinent facts on which decisions were made are generally disseminated.

RESOLVING DIFFERENCES

Differences, competition and even conflict between groups can be expected when serious space matters are involved. With unencumbered resources limited or nonexistent, needy activities will frequently commence evaluation of space of others or space which others have requested. It is not uncommon for one activity to cite space underutilization of another and use the argument as justification for new space demands. Whether or not the complainant is unbiased or otherwise qualified to report on utilization of the other activity is usually immaterial. A situation may soon develop in which a demand is made for arbitration by a higher or coordinating level of management. Confrontation, thus created, can become extremely heated. Solutions may be virtually impossible without alienation of one or more of the parties and the situation may be such that none will be satisfied. It is obviously wise to avoid such positions, and some will duck the dilemma but responsible management must address and confront the problem, taking such action as is necessary.

In these cases, the best solution by far is one that can be devised by the opposing interests. If coercion is necessary, it should first be exerted in requiring such effort without arbitration. The problem arose with "them." "They" should best know the immediate resources and limits of compromise. They should be able to solve it. The classic case is exemplary where a policeman is called to settle a dispute between husband and wife in their home. Such cases are seldom successful, at least from the standpoint of the arbitrator—the policeman. A third party will seldom have as much knowledge of the

situation and avenues for solution, as the principals who are intimately involved. Arbitration should be a last resort and, in the foregoing circumstances, only necessary when space or other resources are required and must be supplied by the arbitrator. The arbitrator or manager should not be placed in the position where he must direct opposing activities to do that which they should have done on their own.

UTILIZATION

Achievement of a simple and effortless measure of utilization is usually a demand of top management and the dream of space administrators. Unfortunately, however, no good, feasible or universally accepted method exists for obtaining and presenting this information mechanically or electronically. An exception might be the case of classrooms or similarly used rooms where attendance is taken and scheduling is relatively straightforward. In these cases, utilization may not be difficult to measure and present in simple terms with comparisons.

Where measurement of utilization is practicable, occupation by numbers of persons and hours per week can provide an adequate indication of degree of classroom use. Utilization of office space might be measured by assuming that assigned occupants are present in their rooms an established amount of time. Such assignment, accordingly, could be an indicator of utilization. Area per station may provide an index of use intensity.

Meaningful comparisons of utilization between activities of the organization can be made if statistics of like activities are used as bases. Political Science, Economics and Mathematics Department office space standards

in a college or university, for example, might have similar accommodations for people, books and limited files. Comparisons become more difficult, however, when office utilization of a purchasing officer is related to that of a research associate. These persons may or may not have desks, bookcases and filing cabinets, requiring considerable area per station, or great amounts of space-taking tools and equipment.

Closely related to utilization is the amount of space needed by various activities. While it is relatively simple to set standards for classrooms and offices, it is very difficult if not impossible to do the same for laboratories and shops, especially when the tools and equipment are highly specialized and the technology is changing. Classroom space standards are frequently established by building codes and office standards can be specified by management according to what the organization can afford. Standards for laboratories are much more complex and subject to wide variations such that reliance must frequently be placed on opinion, educated guess or estimate alone, all subject to question.

It is frequently claimed that the amount of time which a given space is used can provide a good measure of utilization. The case is made that utilization should be adjudged according to the amount of time which the facility is in service. Numerous instances, however, demonstrate that intensity of use is not necessarily a good criterion. A large boring machine installation in a machine shop may be used rarely. The machine may nevertheless be essential for a segment, though small, of the production or research in which the organization is engaged. Its low operation time and therefore the low

utilization of the space it occupies, may actually be immaterial or at least misleading.

Although unsophisticated and somewhat oversimplified, the previously mentioned employees-per-square-foot-of-space can provide meaningful indices. Limitations of such an index must nevertheless be observed and comparisons validated. General rather than specific applications should be made. It should not necessarily be concluded, for example, that inorganic chemistry research person, John Jones, has more space than needed when a comparison is made with less assigned space of Bob Smith who is an administrator in the development section. Space can be indexed with sales volume, numbers of students, previous statistics, numbers of employees, research volume or many other factors which might indicate a trend. It is interesting to experiment with comparisons and matrices using space related data. Useful correlations frequently become apparent.

SPACE ASSIGNMENTS

It is necessary that all spaces be associated with a responsible person or activity. Moreover, the activity or person should be an active member of the institution with an office or base where communications can be addressed and information obtained. A responsible person or activity is needed to supervise upkeep, security, changes and utilization of the space.

Assignments should be made by or with the authority of a high level person or committee. Although many will be perfunctory or amount to little more than efficient bookkeeping, some will be extremely important, be decided after considerable deliberation and perhaps a

determining factor in the success or failure of the particular operation which is supported by the assignment. The space allocation should always be at least reviewed or subject to the review of this major authority. It follows that a formal, hard-copy document should announce and promulgate the transaction. A memorandum similar to that below has been used with success for many years:

INSTITUTION

TO: J. H. Jones
K. M. Smith
D. T. Morse
J. E. Gross
D. N. Kulpa
T. D. Downs

DATE:

PLEASE BE ADVISED OF CHANGES IN ROOM ASSIGNMENT AS FOLLOWS:

ROOM 75-750

PREVIOUS USER	ADMINISTRATIVE ASSIGNEE
Department of Fuels Research	Development Office

EFFECTIVE DATE January 15, 1984 UNTIL June 10, 1984

J. R. Admin

For Space Inventory Recording System:

SPACE	AREA	ROOM TYPE	USER
75-750	550 s.f.	OFFICE	DEV OFF

Authority: DFR letter of December 15, 1983

BEST COPY AVAILABLE

Being a relatively formal piece of paper, with the aforementioned authority behind it, the assignment memorandum then becomes an excellent record of the space designation and a valuable permanent file. Although an organization with large amounts of space may have difficulty in preparation of a memo for every space, it is nevertheless desirable that such a document be available. A data processing printout of the space inventory is perhaps not adequate to serve as the basic assignment record except where there is little or no possibility of future contest for the spaces. Rather, a one page memo such as that above is recommended. This is especially true if it is likely that authority or reasons for the assignment are likely to be subsequently required. A good record is frequently necessary since searching questions may be asked regarding basis for the assignment. And finally, a hard copy memorandum such as this is usually necessary for personnel who will transfer the information to the space inventory data processing system.

As discussed briefly in Chapter 3, the occupant or his organization should normally be the assignee of the room. "Loaning" space has been found to be a poor practice since it tends to hide the real user or the activity which actually operates the facility. If the area isn't needed by the assignee, it should be reassigned to one that does need it and space data should show the transaction. Space assignment procedures should reflect a policy such that a given room was assigned to Activity A from Activity B because Activity A had a greater need for it. If it is necessary to subsequently reassign this room for use

by Activity B, the decision should be made by the central authority or committee, not by Activity B.

The foregoing is admittedly idealistic, at least to a degree. Real world cases may be different. As mentioned previously, activities may attempt to hoard underutilized space. This may be accomplished by, in the case of an area which is required in the future but which is presently unused, loaning the space to another activity which has an important need and can show adequate utilization. The lending activity holds "ownership" and yet escapes criticism or possible loss. As an aggravation, the arrangements may be made surreptitiously and be difficult to detect. In addition to adverse effects, including the misleading indications of utilization produced by loaning of space, the loaners may be unable to later retrieve their space. The loanee may have developed an overwhelming need for the rooms and actually be unable to vacate without severe hardship. "Calling" the loan may be very painful. An additional problem might appear if the loan had been made informally. After passage of time, terms of the transfer may have become blurred, perhaps deliberately, and the loaner may have difficulty in establishing his original "rights" to the space. Loans of space frequently create untenable circumstances for all parties.

It may be expedient to assign all space for specific periods. Temporary assignments, for example, could be made for a period of five years. This would reinforce a viable policy that space is allocated for specific purposes by a central authority and, after the purpose has been served, it should be reassigned, especially if the next occupant has a significantly greater need. It may be less

difficult, incidentally, to sustain this policy if the next occupant has, in fact, a greater need. Temporary assignments, especially for short periods, should have termination dates or effective periods clearly delineated. Specificity regarding terms of the assignment is a most essential precaution. Length of the stay "should be in writing."

A temporary assignment may nevertheless be difficult to manage. The occupant may not have realized how essential was the space until after it is occupied. A minor need at the outset could develop into a major one until, after a period of use, permanent assignment may be considered mandatory. Hiring of additional personnel without foresight for their accommodation or acquisition of new equipment without planning for its future operating requirements may aggravate this condition.

STANDARDS

Although mentioned previously in the context of problems which can arise in space management, the subject of space standards is again discussed to provide guidelines for management decisions. Consensus is usually difficult to establish, but at least an informal, confidential or unwritten code is normally required. Planning for occupation or alteration of new space requires an estimate of amount of space needed for a given number of people. Determination of size of offices needed to locate X number of people in assigned area Y, for example, would obviously be difficult without a credible idea regarding amount of space logically needed for each person. Experience has shown that a definite demand exists for this information. Lacking a carefully

planned and universally accepted documentation, a "ball park" listing of suggested amounts of space for certain individuals can be very useful.

Obviously, not all activities will have the same standards. One list will certainly not suffice for all. A group that uses bulky machinery requires, of course, more space per person than one whose people do most of their work with pencil and typewriter. Many influences, effects or determinants may be present or necessary such as costs, locale, life styles or regulations. Recognizing this qualification, the following list of office standards is submitted for an "average" organization:

Position	Approximate floor area
Clerical worker	60 s.f.
Research Assistant	80 s.f.
Secretary in pool	80 s.f.
Secretary	100 s.f.
Administrative Assistant	110 s.f.
Junior executive	120 s.f.
Assistant Professor	120 s.f.
Executive	140 s.f.
Associate Professor	140 s.f.
Professor	180 s.f.
Senior research person	180 s.f.
Department Head	180 s.f.
Dean	200 s.f.
Vice President	200 s.f.
President	250 plus

In addition to offices, classroom space can be standardized to advantage. Classroom space standards are, in fact, usually set by state building code or other device. In most cases, the standard is 25 s.f. per student. Estab-

lishment of standards for other spaces, such as laboratories and shops, is usually not useful unless many stations exist and the functions of each are approximately the same. Only local applications of such standards have value.

Expect antipathy regarding suggestion of standards for space assignments. It is a bold step indeed, and exceptions may immediately be taken. A liberal community in particular will probably rebel, especially if the differences between various administrative levels or ranks are publicized. A sophisticated academic community will probably insist that facilities of the organization, including amounts of space, should be made available on the basis of function and need, not on a predetermined list which may seem to be graded and ranked. Competition for space will be an omnipresent influence and perhaps a part of all the foregoing objections.

In a typical organization, the key to composition or specification of standards can lie in origin of such standards. If evolved from precedent, or that which worked satisfactorily in the past, then a certain pattern can be expected. One can probably make determinations from existing standards. On the other hand, if dissatisfaction has existed and a cure for previous ills is desired, then different measures must be proposed. Corrections for problems of the past may come about as a result of the new standards. Perhaps a similar organization "down the street," that has minimized the problem, can provide a useable example. It may be necessary, if carefully calculated measures fail, to arbitrarily make a judgment specifying logical standards as a proposal for trial use, then make subsequent modifications as necessary.

"CHARGING" FOR SPACE

Where space is owned or rented by the institution and distributed or assigned internally according to best assessments of community needs, a question will arise regarding cost of the space as it relates to individual activities. It may be felt that such activities should "pay" for assigned space, even though payment might only be an internal paper transaction. The argument is made that less demand for new assignments and better utilization of existing space would thus be manifested. Rationalization continues with attention to the usual case where, if an individual wants more room in his house, he must build or rent the additional space, and shoulder the expense which it entails. If space expansion has no apparent and direct cost, then less effort toward economy can be expected, especially in large nonprofit organizations where individual employees are insulated from or participate little in solution of fiscal problems.

It is suggested, however, that establishing a fee for space is not a satisfactory method for correction of utilization problems nor is the capability to pay for space a good criterion for determination of space assignments, unless acquisition of the space requires immediate funding—not otherwise available. This point is taken largely on the basis of practical considerations. Although attention would obviously be focused on proper utilization of space or its release, cost and effort for administration of the program would be prohibitive. Consider the accounting tasks which would be involved where some type of disbursement would be required from each activity according to the amount and type of space assigned. A separate and, in some cases, extensive bureaucracy would

be necessary to operate the program. Consider the endless debate on "rates," since all space would probably not cost the same. Storage space would certainly not command a fee as high as prime office space. Consider the policing necessary to ensure that space deleted from inventory lists is not actually being used by the former assignee and that space freed as a result of the program is not being occupied by squatters who, incidentally, are sometimes difficut to evict after a bonafide assignment has been made for the space which they have been occupying. New activities which have minimum funding would be difficult to accommodate under these circumstances. Teaching activities in a research-oriented institution are, for example, difficult to fund and accommodate. Such activities would most likely feel the impact of this program. It is also possible that space would be released such that it could not be reassigned to advantage since most of the desirable space would be held and the poorest areas forfeited. A response to the space fee requirement which should be expected is a counter-demand that the budget of the particular activity be increased by the same amount as the fee. Instead of releasing space, some activities might challenge the charge that their assigned space is more than needed and simply require that a compensation be made for increased cost of operations. The net result could then be a zero saving plus the wasted administrative cost and effort. In summary, the disadvantages and problems created by a program where charges are made for assigned space, are believed to outweigh the, mostly theoretical, benefits.

CONCLUSIONS

Observations and experience during the past twenty years at several major Institutions indicate that even the most serious space problems can be solved or at least appeased by management and administrators if:

1. as much information as practicable is obtained regarding each significant situation.
2. all interested, informed and/or experienced parties are consulted as necessary.
3. responsible persons are required to take necessary action, commensurate with their authority.
4. working knowledge of the spaces, space resources, standards and requirements of supported activities is maintained and continuously updated.
5. served activities are promptly advised regarding significant action or progress on their requests.
6. procedures, channels and standards are established in order that relatively consistent results or responses can be expected from proper requests.

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HOW TO MANAGE SPACE provides, in simple terms, step by step instructions and ideas for an effective system to manage room areas in a major organization. Assignment, inventory, equitable allocation, governance, standards, utilization, accounting and administration of changes are included. It suggests what top management and the community should require and how administrators can best produce it. Important concerns of all are addressed.